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THE HYDROGRAPHY AND DYNAMICS OF THE FREDDEX EDDY.(U)

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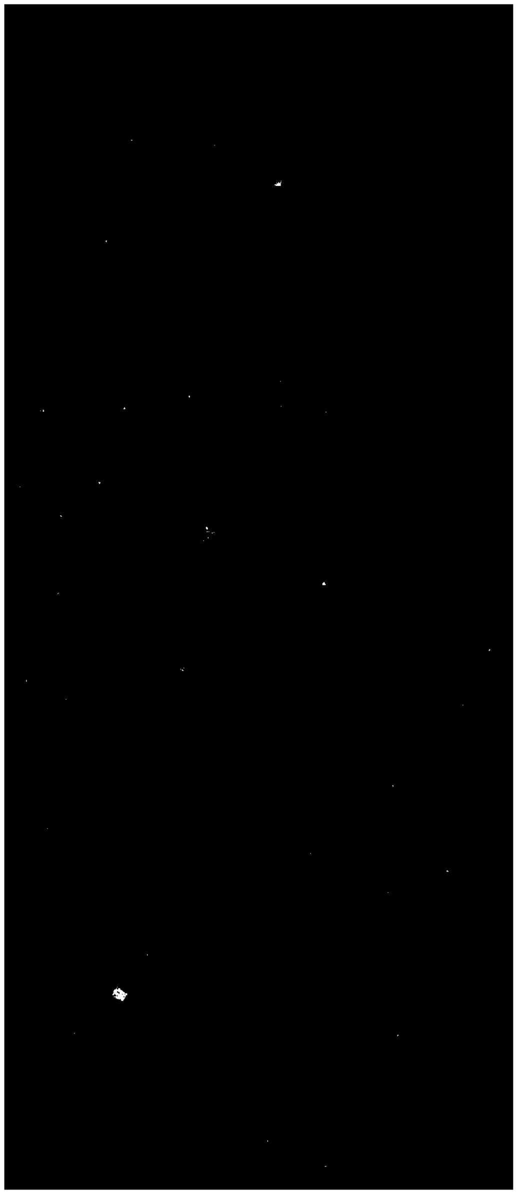

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During the period 3-25 June 1979, a Gulf Stream ring was surveyed with XBT's. These data have been edited and cataloged on the NRL computer. The dynamics of the ring are discussed, and the current structure of the ring has been derived. The Rossby current modes are also calculated and their relative contribution to the ring is discussed.

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A

THE HYDROGRAPHY AND DYNAMICS OF THE FREDDEX EDDY

I. BACKGROUND

Submarine detection and tracking systems operate in the ocean, and their performance is related to ocean structure. Long-range acoustic surveillance systems have to become more sophisticated to achieve the increases in gain, resolution, and tracking capability that are required to search out and hold increasingly elusive targets. However, the advantages to be gained by hardware and software improvements ultimately are limited by inhomogeneities and fluctuations in the environment. Quantitative system design criteria and operational optimization can be achieved with estimates of the multipoint statistical moments of the radiated acoustic field, and these quantities can be calculated from available acoustic propagation and scattering models if the medium dynamics are sufficiently well specified. In particular, knowledge of fine scale inhomogeneities in the sound speed field having vertical scales of order 1-100 m is required for the correct formulation of the acoustic scattering potential in present models. Similarly, possible future nonacoustic trailing systems which would sense perturbations in the ocean left behind by a submarine would have to detect this signal in the noise of natural fluctuations in the environment. In this case, it is expected that vertical scales of order 1-50 m would be responsible for the noise level.

Fine scale fluctuations in the ocean have horizontal scales of tens of meters to several kilometers, vertical scales of 1-100 m, and time scales of minutes to hours. These fluctuations occur in the temperature, salinity, and water velocity fields, and they affect derived fields such as sound speed. The physical phenomena which cause these perturbations are thought to be internal waves and lateral intrusions. The strength of the fluctuations due to internal waves is known to vary with the local vertical

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density gradient (Brunt-Vaisala frequency) and this in turn varies considerably over longer time and space scales. However, the level of fluctuations in vertical profiles due to both sources (and possibly other unidentified sources) is uncertain, especially in the upper ocean, and there are no precise estimates of the variation in level over the larger time and space scales.

In particular, it is known that the ocean fluctuation level in the internal wave band depends upon the local Vaisala and rotation frequencies (Garret and Munk, 1975), and that the Garrett and Munk model is accurate to within a factor of about two in energy level in the deep sea (Wunsch, 1976, and Wunsch and Webb, 1979). For example, Hayes *et al* (1975) illustrate the consistent grouping of temperature profile fluctuation data in scales of 1-50 m by normalization with the Brunt-Vaisala frequency. Numerous other comparisons of data and review of the subject (cf. Gregg and Briscoe, 1979) have increased the confidence in predictions of fine scale temperature fluctuations in the deep ocean away from topographic or environmental features. However, the confidence in the scaling law appropriate in the upper ocean is somewhat lower because of the limited availability of data with which to test it. It is very likely that the level and/or scales of fine structure in addition will be dependent upon the presence or absence of wind stress events and mesoscale features such as fronts. Fronts in particular are sources of lateral intrusions which could increase the temperature fine structure level. Documentation of this effect is sparse though not unnoticed (cf. Gargett, 1975, and Belyayev and Nozdrin, 1979), and the latter gives one of the few estimates of the change in level in temperature fluctuations due to mesoscale features.

The objective of the work to which this report contributes is to understand and model spatial and temporal fine scale fluctuations of thermodynamic variables in the upper ocean, and to relate these fine scale fluctuations to mesoscale processes. A major goal is to relate the fine scale fluctuation level and scales to parameters, such as the Vaisala frequency and the T-S relation, which can be specified from survey measurements of the meso- and larger scales. Emphasis will be placed on a goal to assess temperature variability and its energetic vertical scale. The initial approach is to analyze temperature profile data which are currently available in order to obtain estimates of the fluctuation level in vertical scales

of 1-50 m. NRL possesses digitally recorded XBT data sets which have been acquired during experiments in the Sargasso Sea, across the Gulf Stream, and around a cyclonic ring. These data sets have been the subject of analyses only for their mesoscale content, and the quality of the finer scale informations in them has yet to be assessed in detail. These data will be edited and analyzed for spectral levels in and away from the prominent mesoscale features. This report serves as a data report for one of these edited data sets, and it provides a preliminary analysis of the information in it.

II. INTRODUCTION

During the period 3 June - 25 June, 1979, scientists from ONR, NAVOCEANO, and NRL participated in an at-sea exercise to measure the refraction of acoustic waves by mesoscale features. This experiment, known as FREDDEX (FRont and EDDy EXercise), required the mapping of a Gulf Stream ring northwest of Bermuda and that portion of the Gulf Stream through which the ship transited to reach the vicinity of the ring.

The portion of the experiment which concerns us here is the surveying of the FREDDEX ring during the period 5-21 June, when 602 expendable bathythermograph (XBT) probes were dropped by the USNS LYNCH. Of related interest are the deep hydrographic STD and XBT casts made by the R/V ENDEAVOR.*

This report documents progress made in editing and analyzing the XBT data set, both from a hydrographic and dynamic standpoint. While the hydrography is complete, only a small portion of all of the intended kinematic and dynamic analyses have been performed. Among the tasks planned are an analysis of the mesoscale dynamics and the connection between this larger scale flow and the vertical density (or temperature) fine structure. Although it may seem that the more extensive mesoscale analysis in this report is superfluous, this is not the case. In point of fact, it is fundamental to the view investigated in this study: that the mesoscale and the fine structure are coupled. This is expected to emerge in more detail in subsequent work. For the present, however, we are simply reporting that the

*These data were kindly made available to NRL by Barry Blumenthal (NAVOCEANO) who was the Senior-Scientist-on-Board.

FREDDEX temperature data have been edited and information of the fundamental eddy current environment in which these temperature data are embedded has been generated.

We begin the main body of the report by discussing the experimental plan for the eddy survey in Section III. In the following section (IV), we shall discuss the individual XBT measurements, showing how they were edited and what their structure *vis a vis* that of their location in the eddy indicates. Section V contains the actual morphology of the eddy, its currents and rotation rate. The hydrography and currents exhibited in Section V will then be used to infer some of the eddy dynamics in Section VI, in which we show the modal decomposition of these currents. This constitutes the substance of this report and, in Section VII, we conclude by summarizing both the work which has been accomplished as well as the work which is anticipated.

III. THE EXPERIMENTAL PLAN FOR THE EDDY

The actual motivating concept behind this experiment was to have an acoustic source aboard the USNS LYNCH and an acoustic receiving array aboard the USNS HAYES. The acoustic transmission from source to receiver could then be examined in light of the hydrographic data taken by the LYNCH. To properly monitor the environment within the eddy, a pattern resembling the rotors of a pinwheel or the petals of a flower centered on the eddy was conceived. Two such patterns were run, separated in time by about three and one-half days, and are shown in Fig. 1a,b.

Although each pinwheel was designed to have five rotors, the latter data set has only four, because of *ad hoc* time constraints placed upon the experiment toward its final stages. In future planned work, the former data set will prove to be very useful, because it more densely samples the eddy hydrography. This is essential because details of the mesoscale velocity and shear fields have been computed using the thermal wind equation and will be reported in the future. The essential point to be made is that the success of this calculation depends upon the close spacing of the data, so that variability across the feature is adequately resolved.

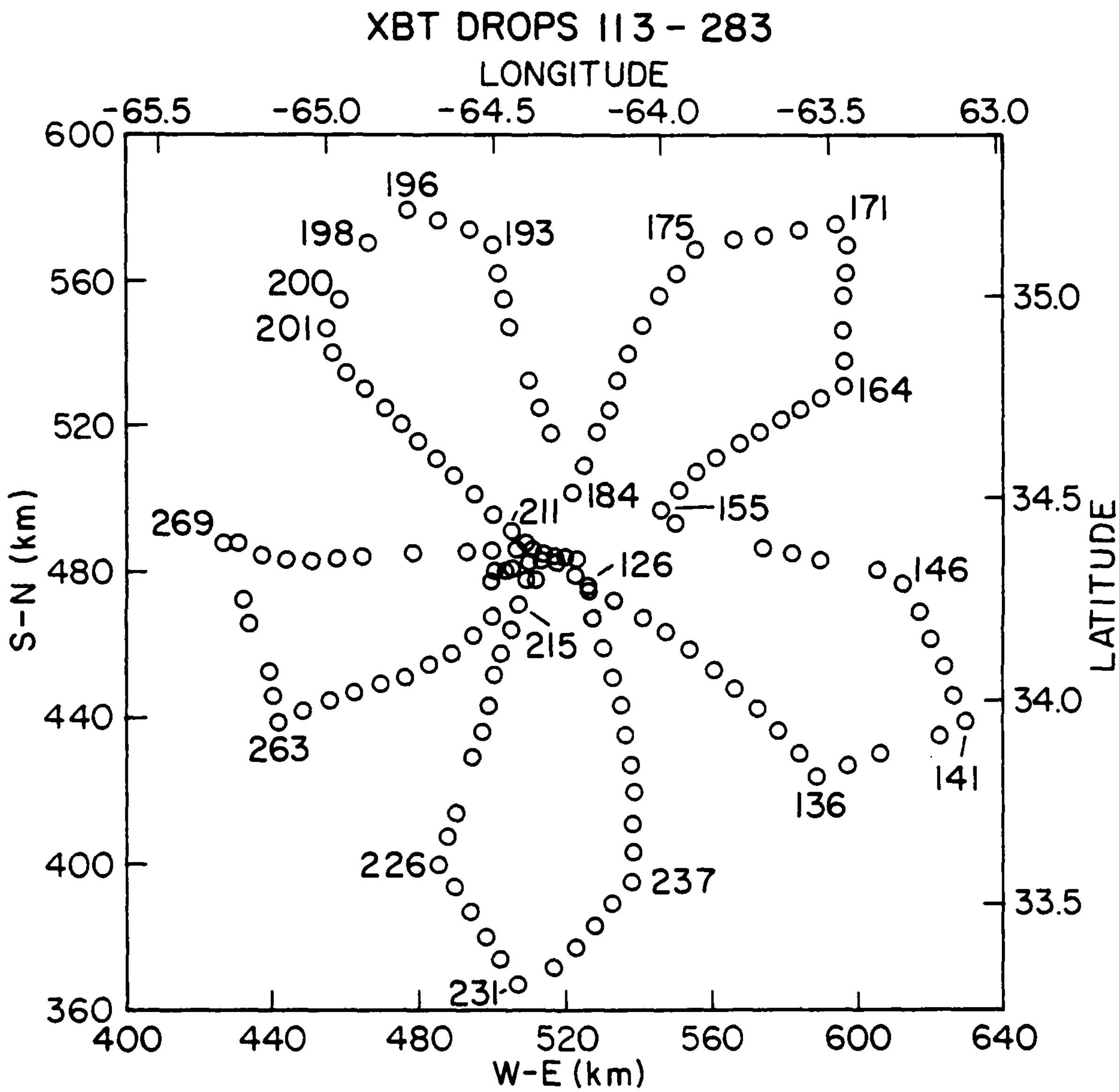

Fig. 1a. The first pinwheel sampling procedure. The longitude and latitude are shown as well as the distance in kilometers. Each dot marks the site of an XBT cast. Only the valid XBTs are shown (see Section IV). These are numbered sequentially and several of these numbers are shown beside each XBT for reference. Numbers 113-283 correspond to the period (8 June, 1979, 0410 Z) to (11 June, 1979, 1330 Z).

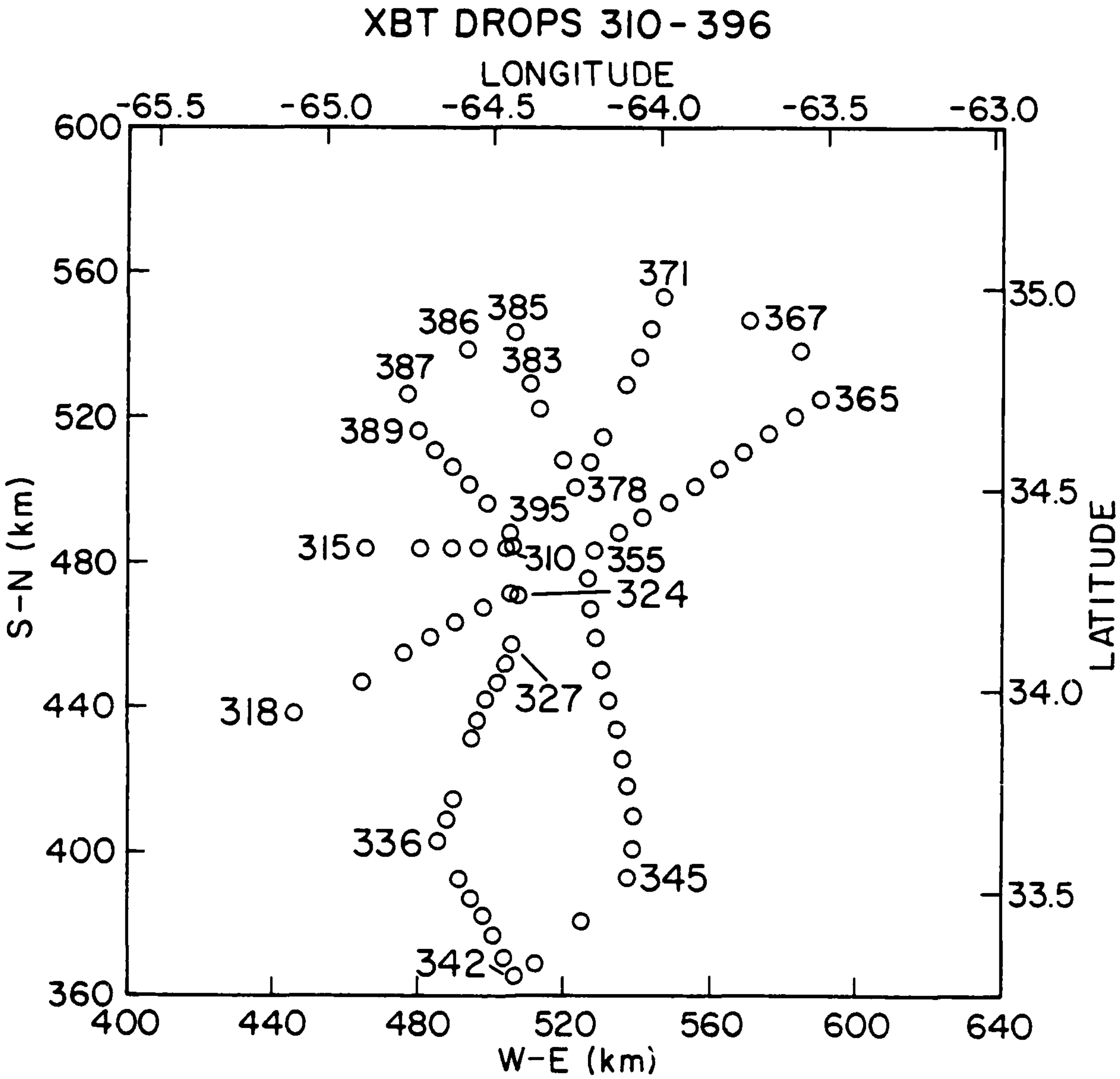

Fig. 1b The abbreviated second pinwheel with XBT #310 (12 June, 0230 Z) through XBT #396 (14 June, 0330 Z)

IV. DESCRIPTION OF THE DATA

The XBT probes were dropped from the USNS LYNCH and are Sippican T-5 and T-7 models with a nominal depth capability of 1800 and 760 m respectively. Probes were dropped every 30 min, and the types were alternated, so that similar probes were spaced one hour in time. The concomitant spatial resolution was better than 10 km. There were 602 XBT's deployed in the pinwheel pattern, but 80 of these were rejected because of one or more of the following problems:

1. Spiking in the signal caused by wire leaks.

2. A temperature trace increasing with depth in the mixed layer, a malfunction discussed by Dugan and Schuetz (1977).

3. An obvious offset of several degrees at all depths which is inconsistent with contiguous drops.

Also, XBT's far apart in time, but close in space, were discarded because they were found to give an inconsistent picture of the dynamics and isotherm shape; that is, the data were not synoptic. Information pertaining to the remaining 522 XBT's is shown in Table I located at the end of this report. Included are XBT cast number, number of data points digitized at 30 Hz, latitude, longitude, type of XBT (T-5 or T-7), Julian day and Zulu time (GMT) of cast, depth of ocean at position of cast, an estimate of seasonal mixed layer depth, and surface temperature. Depth is in meters and temperature in degrees centigrade.

The drop rates for these probes are

$$z = 6.64\,t - 0.00177\,t^2 \qquad \text{(T-5)}$$

and

$$z = 6.472\,t - 0.00216\,t^2 \qquad \text{(T-7)}$$

where z is the depth in meters and t is elapsed time (seconds) from the contact of the probe with the ocean surface. Depth resolution is calculated assuming 1/30 of a second between digitized data points and is $\simeq$ 20 cm. The amount of detail observable at scales much larger than this resolution is astounding and can be seen in an expanded XBT trace in Fig. 2. The quantitative details of individual casts and how they vary across the eddy are the intended subjects of a future report, but we will remark on some of the qualitative differences in different portions of the eddy.

Sample plots of such digitized data are shown in Figs. 3a-c. The first set of four XBT's (Fig. 3a) was deployed en route to the eddy but still about 160 km from its outer edge. The second four traces (Fig. 3b) are from the area of maximum rotational velocity of the eddy. The last set is from the center

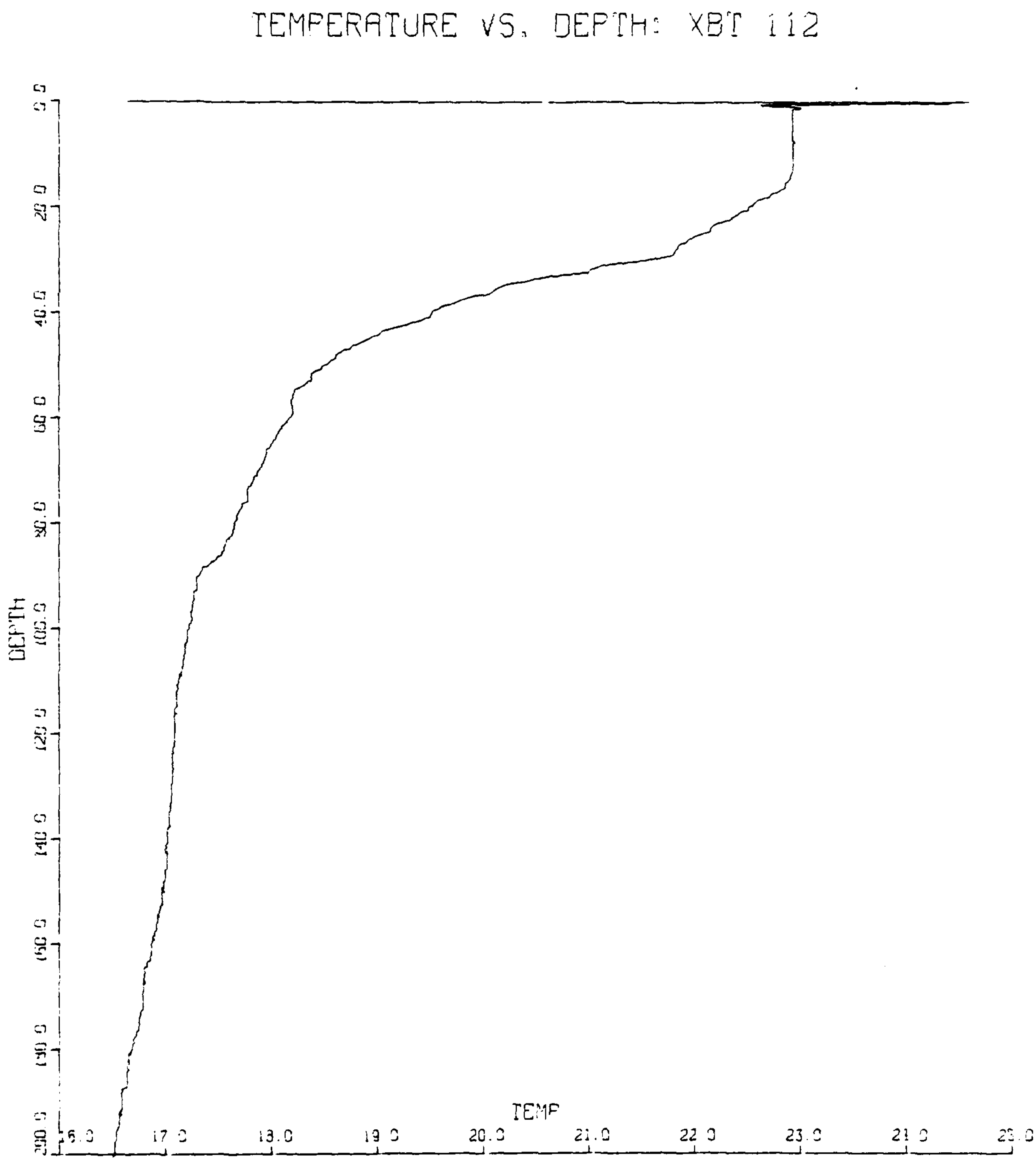

Fig. 2. Enlarged trace of XBT 112 showing temperature (°C) as a function of depth (m). The amount of fine structure is striking.

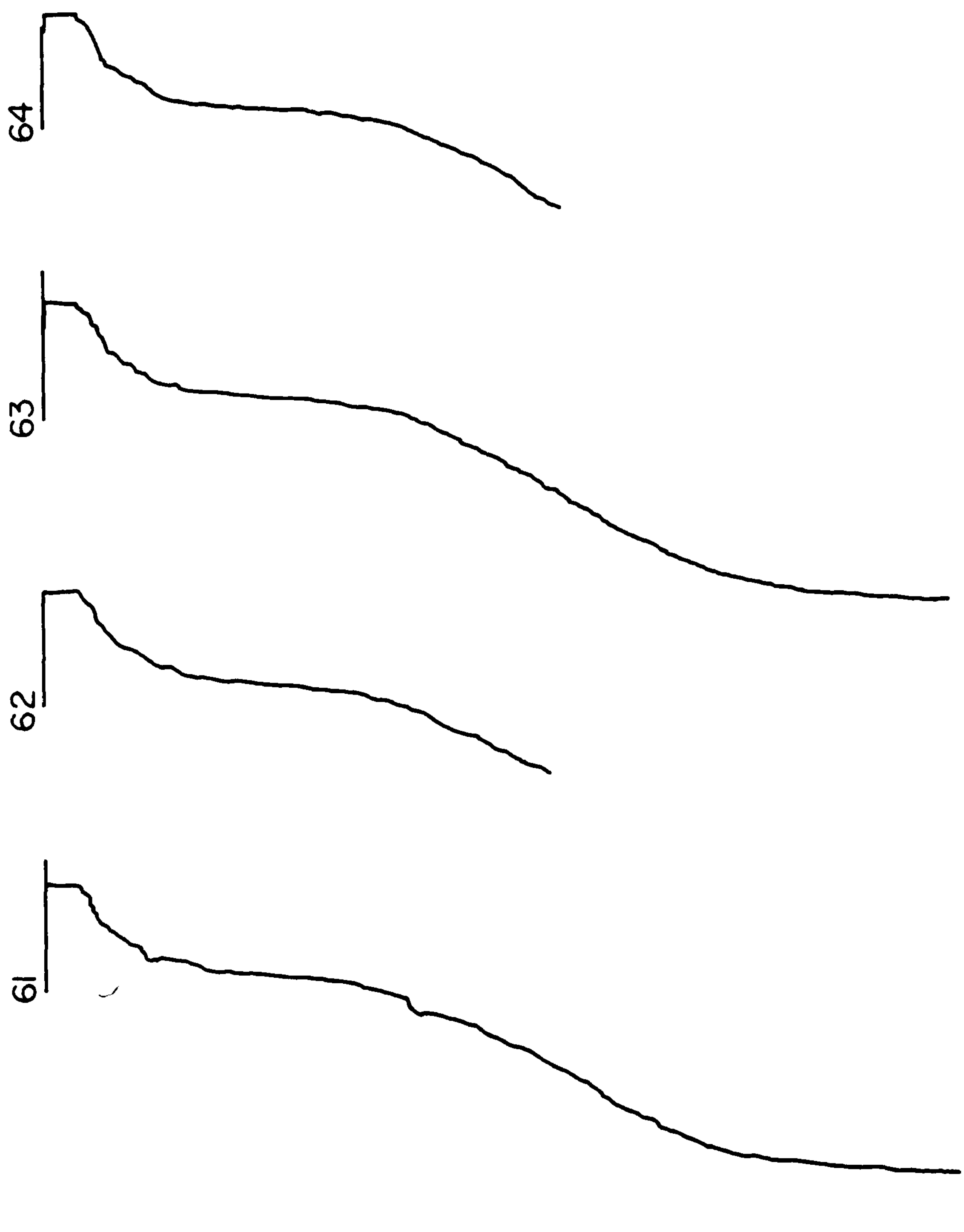

Fig. 3a. XBT #61-64 from a region 160 km west of the edge of the eddy. Note the relatively deep seasonal mixed layer.

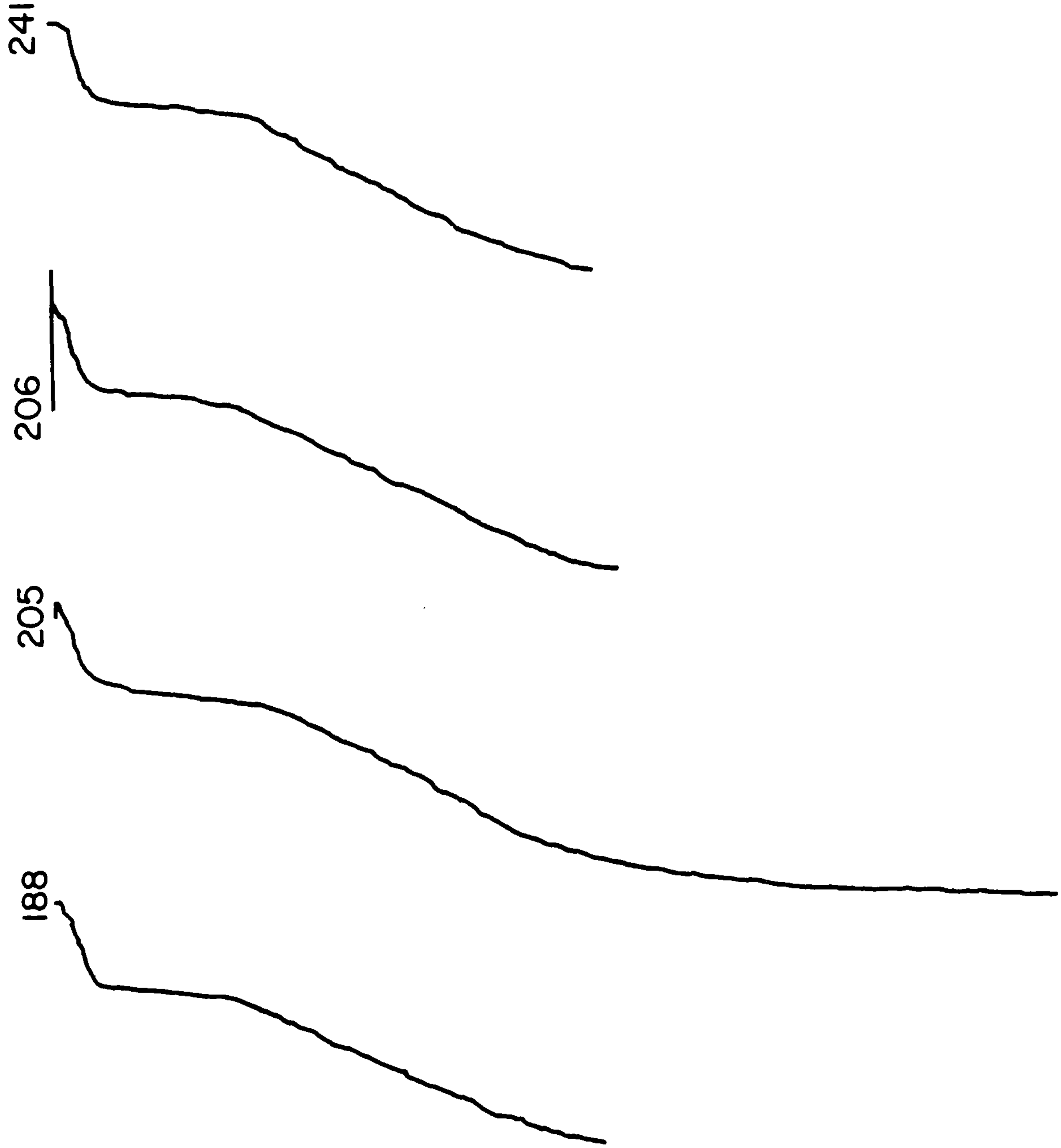

Fig. 3b. XBT's from the region of maximum current around the eddy. Note the absence of the mixed layer.

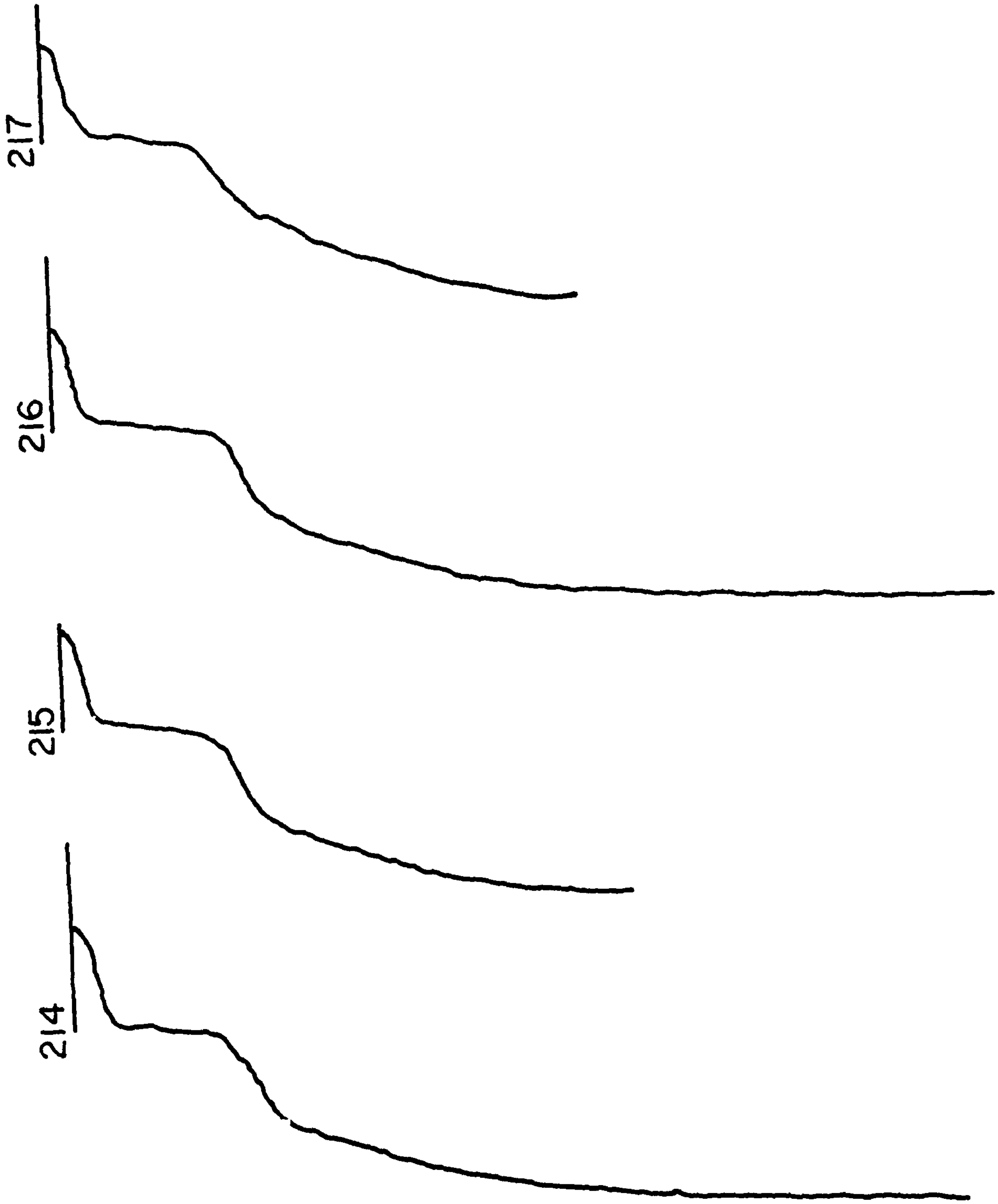

Fig. 3c. XBT traces from the center of the eddy. Note evidence of a shallow mixed layer.

of the eddy where, as with the first set, rotational velocity approaches zero. Note the seasonal mixed layer has become relatively shallow in the high velocity region and is only slightly deeper in the cold core of the eddy.

V. CURRENTS AND ISOTHERMAL SURFACE SHAPES

The XBT drops outlined in Section IV give temperature as a function of depth. As seen in Fig. 2, the data exhibit quite a lot of detail, but this noise is only a small fraction of the total signal. It is therefore a straightforward matter to examine each XBT to find the depth at which a given isotherm first occurs. In Figs. 4a-c, we show the contours of the 15°C isotherm in the FREDDEX area. If we liken the elongated eddy to an ellipse, we can define the equivalent of its major and minor axes. From Fig. 4a (8-11 June) to Fig. 4b (12-14 June) the axes have rotated cyclonically by at most 4°. Using the R/V ENDEAVOR data however, we see (Fig. 4c, 16-19 June) that this third realization shows a significant rotation of the axis in only a few more days. By taking the time of Figs. 4a and 4c to be nominally at the midpoint of their respective time intervals, we may calculate the rate of cyclonic rotations (Table II) of the azimuthal wave pattern to be $1.3 \cdot 10^{-6}\ s^{-1}$, which is scarcely one third of the rotation rate reported by Spence and Legeckis (1981) for their cyclonic ring. By postulating a simple axisymmetric eddy flow dependent only upon radius and depth, they calculate the modes of baroclinic instability and conclude that the observed one ($n = 2$ for an azimuthal disturbance $e^{in\theta}$) is stable. This is in fact consistent with their observation that the wave appears to decay in time. We cannot report any similar finding with confidence, because the period of observation was nominally only a week.

Table II. Rate of rotation of the FREDDEX eddy.

Ship	Time Period	Nominal Time	Major axis (deg. from Horizontal)
LYNCH	8 June 0410Z– –11 June 1330Z	10 June 0130Z	8.5°
ENDEAVOR	16 June 1400Z– –19 June 0300Z	17 June 2030Z	57.0°

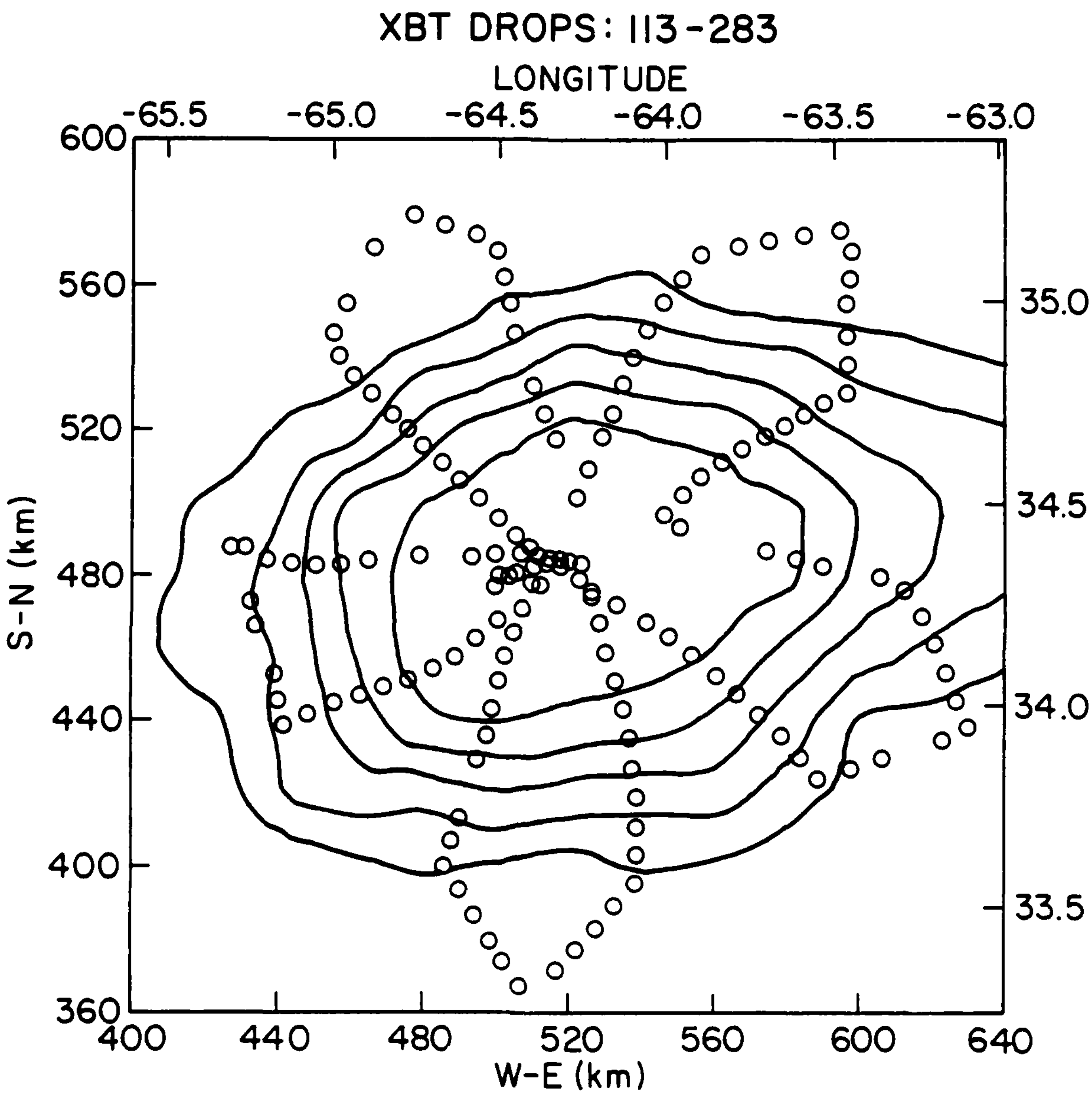

Fig. 4a. Contours of constant depth of the 15 ° C isotherm for the first pinwheel. The innermost contour is 300 m, and the contours increase outward in depth by 50 m increments. These data were taken by the USNS LYNCH.

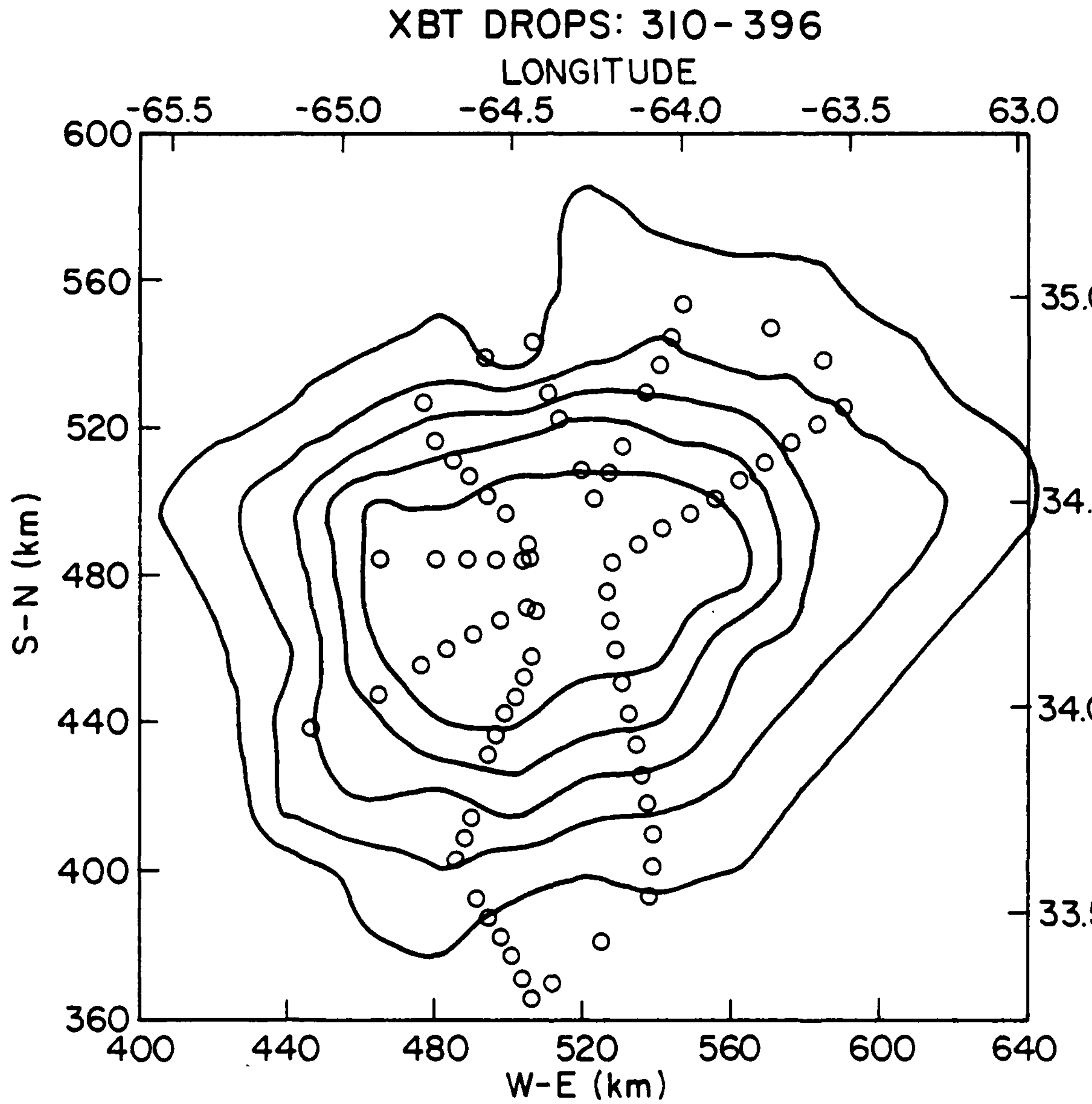

Fig. 4b. Same as 4a, but for the second pinwheel

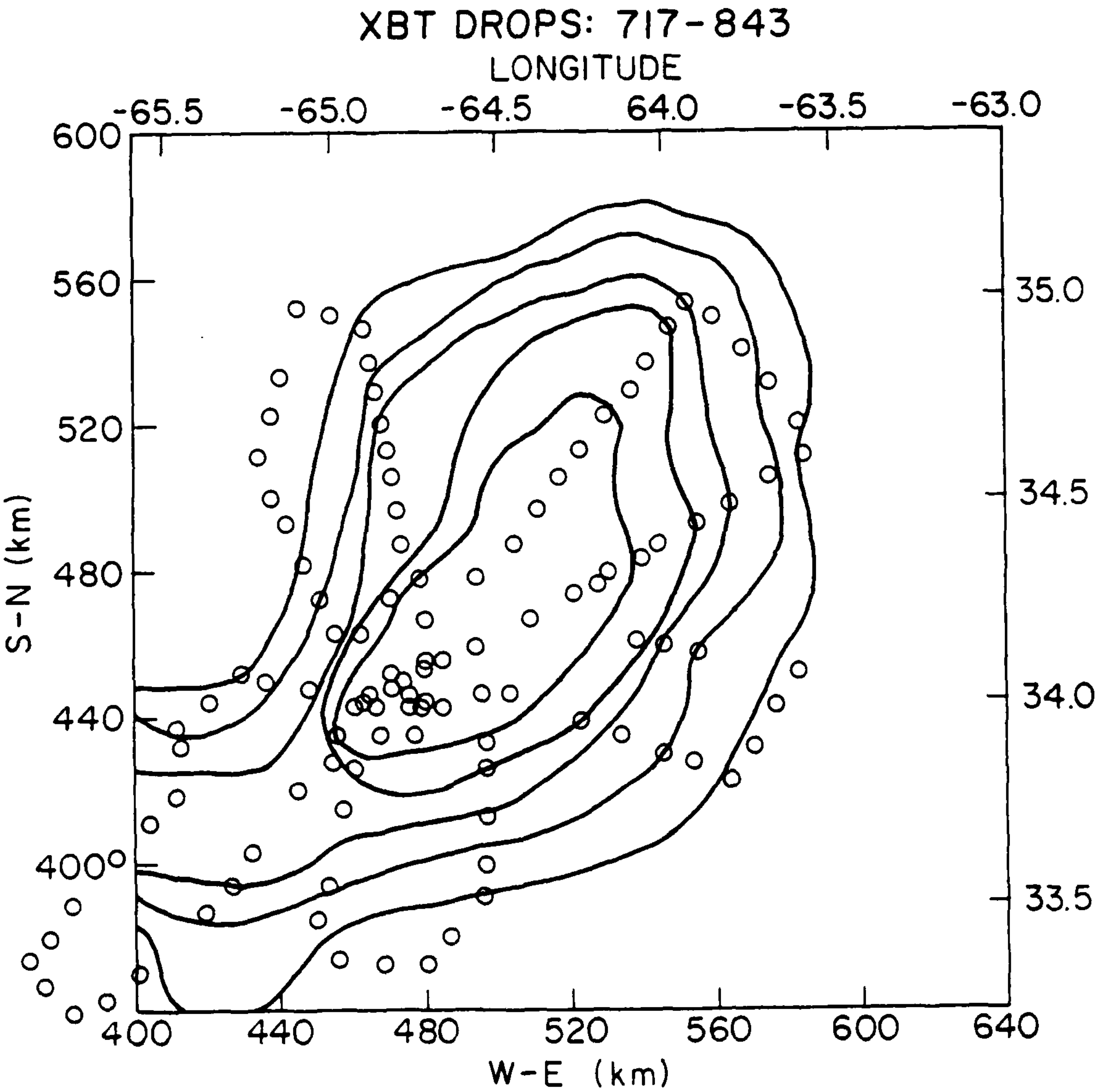

Fig. 4c. Same as 4a, but for the period 16 June 1979 (1400 Z) through 19 June (0300 Z). These data were taken by the R/V ENDEAVOR.

The point should be made that the plots in Fig. 4a-c have been made using a rather crude objective analysis algorithm. That is, the irregularly spaced data were mapped onto a rectangular grid with evenly spaced mesh points by using the following technique. Suppose that a variable $W(x_i, y_i, t)$ is measured with each XBT at a point $\underset{\sim}{x}_i$. For computational purposes, however, we require a knowledge of W at regularly spaced horizontal grid points $\underset{\sim}{x}$. To obtain this we define W at the desired grid point $\underset{\sim}{x}$ in terms of its value $W_i(\underset{\sim}{x}_i)$ at the neighboring points $\underset{\sim}{x}_i$ as

$$W = \frac{\sum_{i=1}^{N} k_i \, W_i \, (\underset{\sim}{x}_i)}{\sum_{i=1}^{N} k_i}$$

with $k_i = 1 - d_{i/R}$. The distance R represents the maximum radial distance max $\underset{\sim}{x}$ of contribution points. We put $R \equiv 15$ km unless the circle contains less than 3 points. In that event, we put $R = 20$ km. The distance $d_i = |\underset{\sim}{x} - \underset{\sim}{x}_i|$ is the radial distance from the point $\underset{\sim}{x}_i$ to $\underset{\sim}{x}$. The plots are thus expected to be considerably more accurate than subjectively-obtained maps, but probably not quite as smoothed as ones obtained with a more rigorous objective analysis method.

The following technique was used to determine the density $\rho(\underset{\sim}{x}, z, t)$. The density is a function of the temperature and salinity, which were obtained from historical hydrocast data on file at NODC (Emery, 1978). When referred to regularly spaced data points, the density is then used in the thermal wind equation to compute the geostrophic currents:

$$\underset{\sim}{f}_0 \times \frac{\partial \underset{\sim}{u}}{\partial z} = \frac{g}{\rho_0} \nabla \rho .$$

A reference level of no motion at 1600 m is assumed. For the two LYNCH pinwheels, we show the contours of constant pressure at 200 m depth (Fig. 5a,b) on which are superimposed the current vectors at that depth. Because the currents are obtained through geostrophic calculations, they are locally parallel to the pressure contours. Moreover, the maximum surface velocities of order 100 cm/sec are in quantitative agreement with *in situ* set and drift observations aboard the LYNCH.

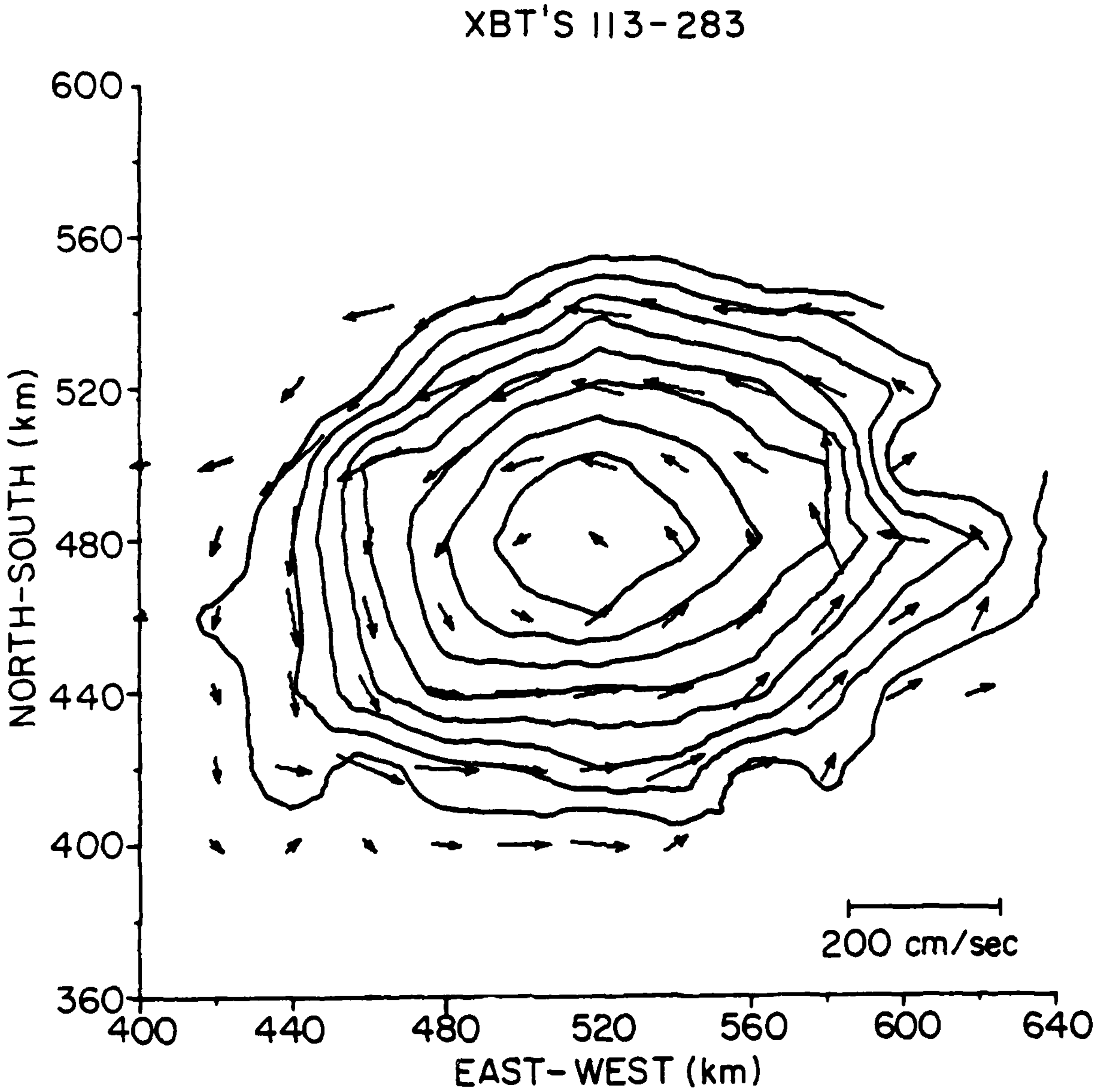

Fig. 5a. The current vectors at 200 m superimposed on the pressure contours at that depth for the first LYNCH pinwheel. The center of the arrow is the point at which the current is indicated.

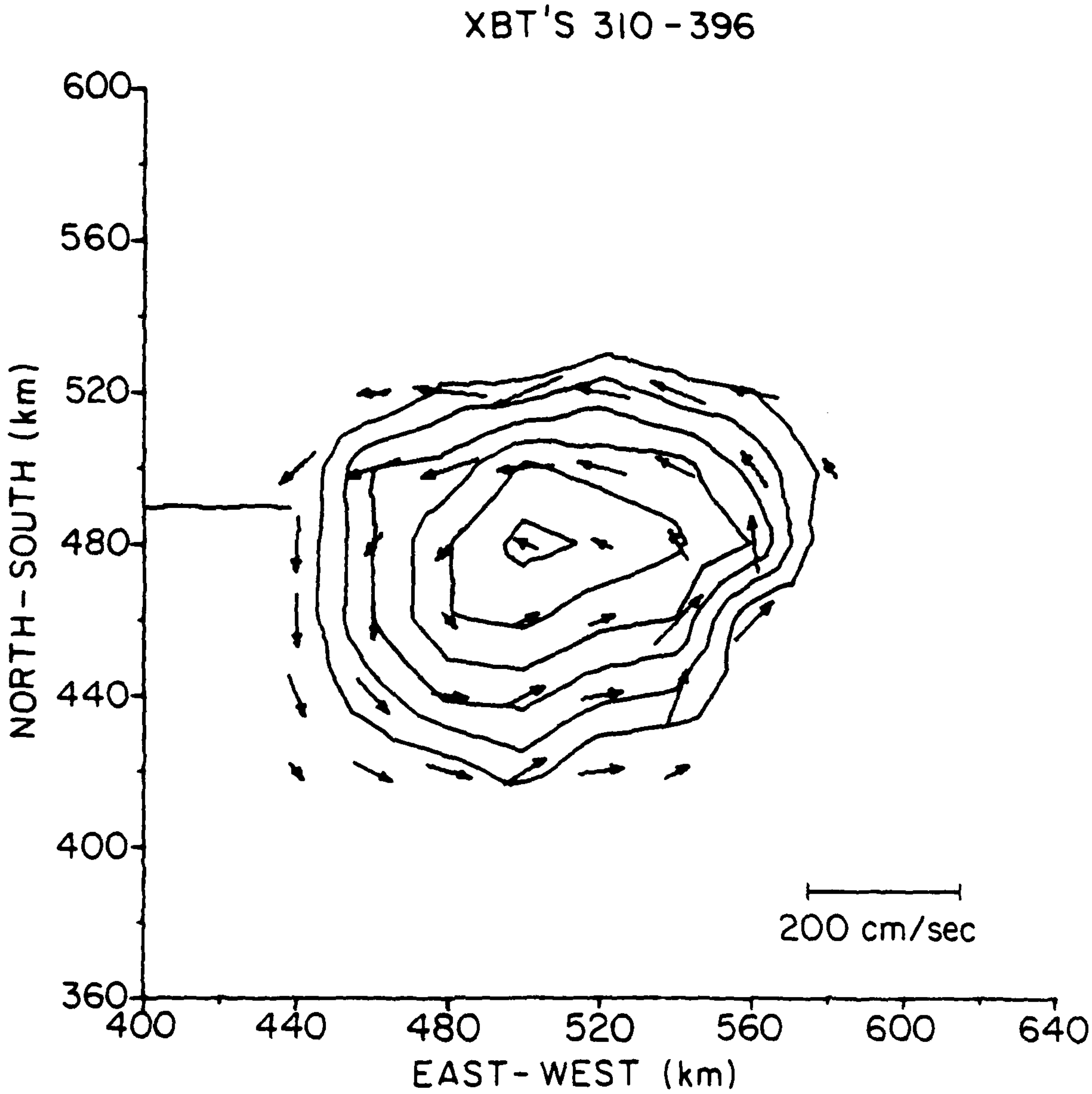

Fig. 5b. Same as 5a, but for the second pinwheel.

An alternative and perhaps more revealing view of the currents can be obtained by examining vertical profiles at different position in the eddy (Fig. 6). The first thing to be noticed is that the level of no motion assumed at 1600 m is well placed. As one goes deeper in the ocean, velocity profiles decrease smoothly to zero at a depth well above the assumed level of no motion. This eddy is then in the final vertical end state known as an "upper ocean eddy" (Mied and Lindemann, 1979; McWilliams and Flierl, 1979). This fairly universal effect appears to occur in shallow thermocline oceans, because the vortex stretching terms in the equations of motion are simply incapable of communicating the motion in the upper ocean to the deep ocean. After initiation of the ring, the deep ocean flow is then governed by what is essentially a barotropic equation and thus exhibits the concomitant rapid dispersion of the signal. This implies that the barotropic and baroclinic modes must sum in a unique fashion to produce this quiescent deep ocean beneath the ring. In the following section, we make comments about the modal decomposition of the currents in the ring.

VI. DYNAMICS OF THE EDDY CURRENTS

We begin this discussion of the modal current structure of the eddy by investigating the stratification of the environment. To do this we need a knowledge of the Brunt-Vaisala frequency profile throughout the water column outside the eddy. This is obtained for the upper ocean by averaging XBT numbers 52-77, 136-143, 167-177, 191-203, 226-238, and by using the STD casts from the R/V ENDEAVOR (Bergin, 1980) for the deeper ocean. The resulting ambient Brunt-Vaisala ($N(z)$) profile for the upper ocean is shown in Fig. 7, and is really fairly typical of the type observed in the southern Sargasso Sea. It is this function which we use to calculate the Rossby current modes into which the eddy current is decomposed. The vertical modes in the absence of a mean current are given by solutions to the eigenvalue problem (Pedlosky, 1979)

$$\frac{d}{dz}\frac{f_0^2}{N^2(z)}\frac{dF_i}{dz} + \lambda_i F_i = 0 \text{ with } \frac{dF_i}{dz} = 0 \text{ at } z = 0,\ -H,$$

where the Coriolis parameter $f_0 = 8.236 \cdot 10^{-5}$ sec^{-1} is calculated based upon a nominal central latitude of 34.5° North. The depth H is taken to be a nominal 5000 m because the bottom topography sampled

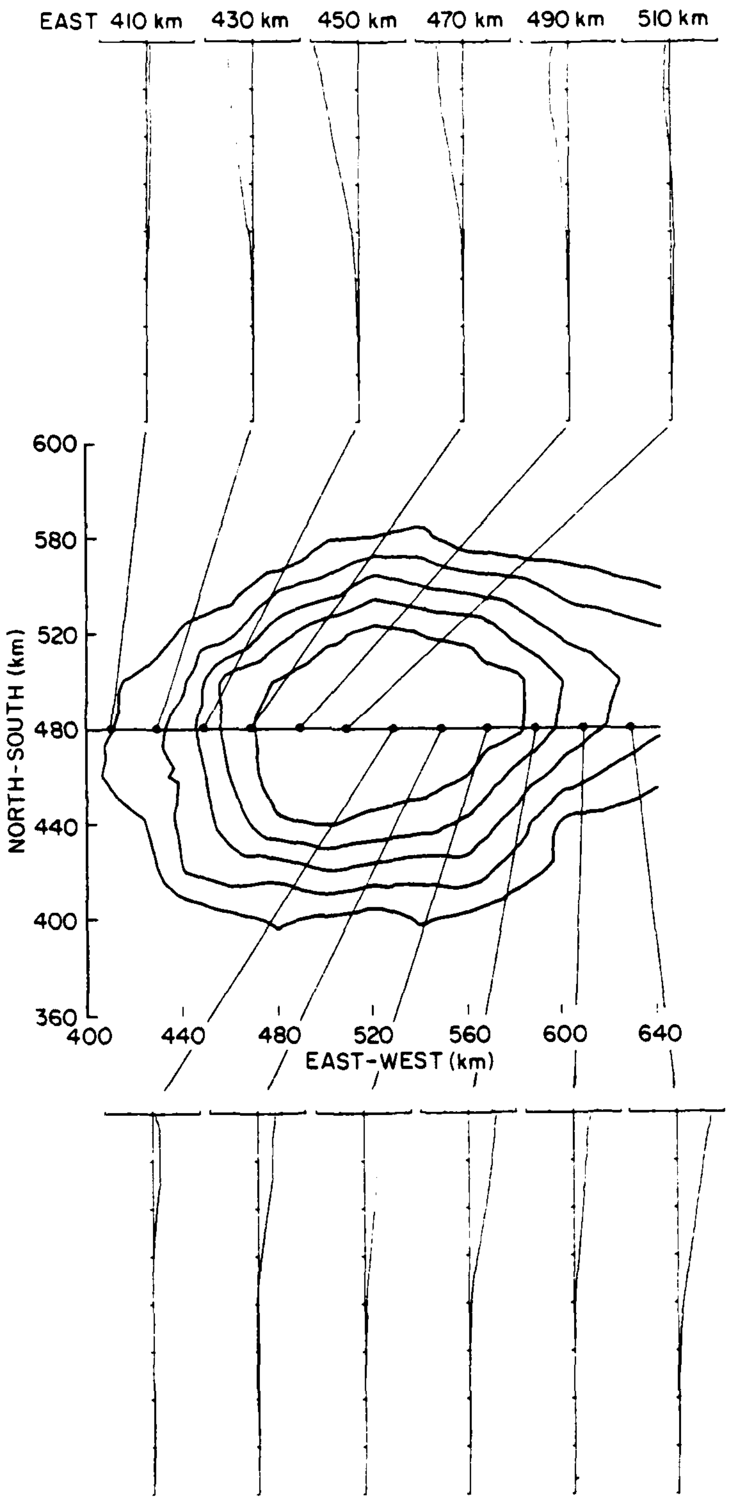

Fig. 6. The North-South current as a function of depth in a constant-latitude section (at 480 km) across the eddy.

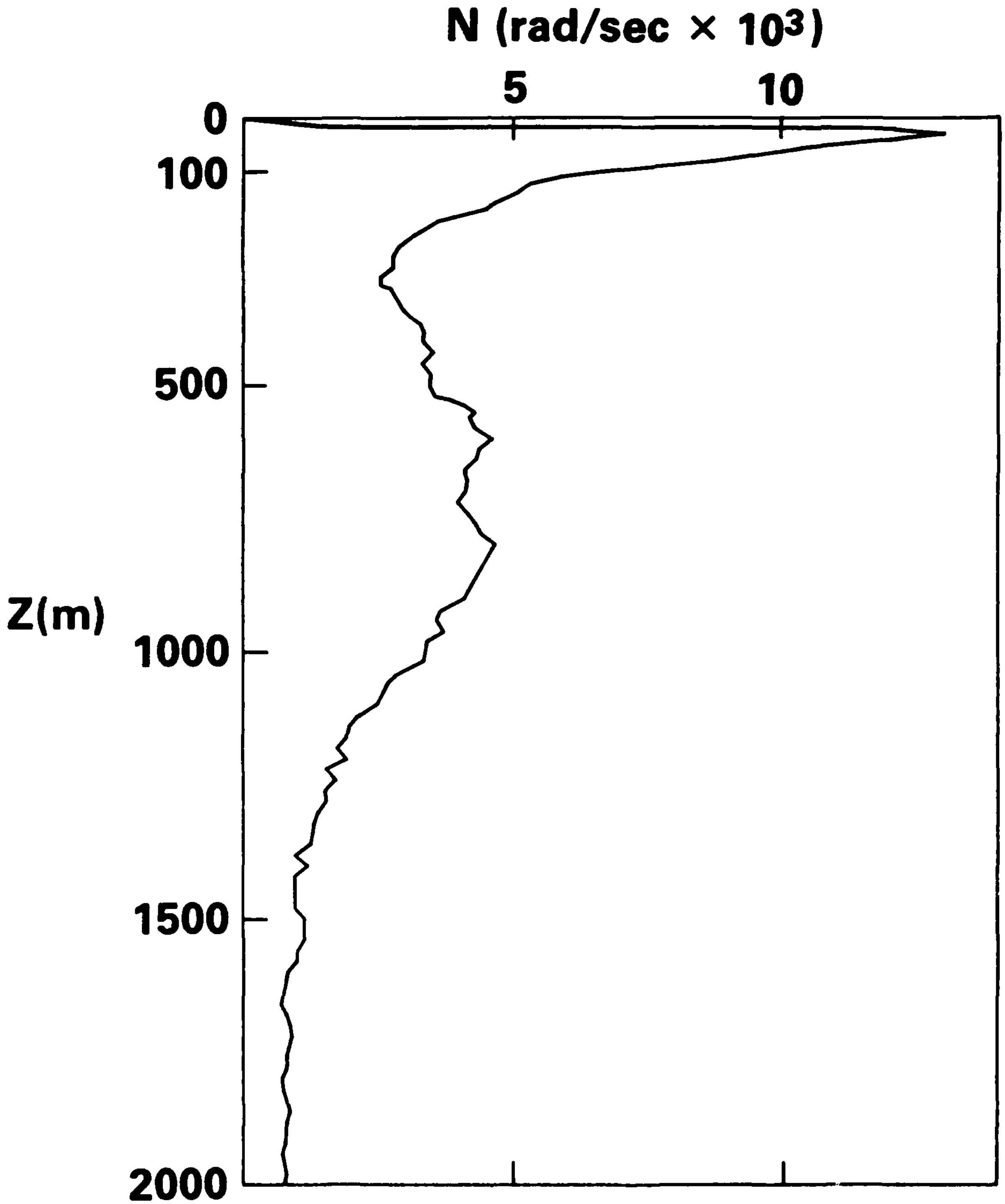

Fig. 7. The Brunt-Vaisala frequency for the ocean region just outside the eddy.

in the vicinity of the eddy varies non-monotonically in the range 4850-5100 m. The eigenfunctions F_i are normalized so that

$$\frac{1}{H}\int_{-H}^{0} F_i F_j \, dz = \delta_{ij}.$$

The eigenvalues are summarized in Table III, and the eigenfunctions are shown in Fig. 8. They hold no surprises and are qualitatively similar to those found by Flierl (1978) for the MODE region.

By making use of this orthonormalization, we may evaluate the coefficients in the horizontal current expansions $(U(\underset{\sim}{x},z,t),\ V(\underset{\sim}{x},z,t))$. For example, if

$$U(\underset{\sim}{x},z,t) = \sum_{j=0}^{\infty} U_j\,(\underset{\sim}{x},t)\ F_j(z),$$

then

$$U_j(\underset{\sim}{x},t) = \frac{1}{H}\int_{-H}^{0} U\,(\underset{\sim}{x},z,t)\ F_j\,(z)\ dz.$$

The U_j and V_j have been found for $0 \leqslant j \leqslant 10$ and the results are encouragingly simplistic. In Fig. 9, a histogram of the quantity $c_j = (U_j^2 + V_j^2)$ is plotted along an east-west track through the eddy. We see that the preponderance of the current variation is due to the presence of the first baroclinic and barotropic modes. Because the energy in the eddy flow (kinetic + available potential) is actually a functional of the square of the coefficients U_j and V_j in Fig. 9, the fact that the modal structure favors modes 0 and 1 is even more evident.

That the majority of the energy is contained in the barotropic and first baroclinic modes is a result which has emerged from several different numerical (Robinson *et al.* 1977) and experimental findings (McWilliams and Flierl, 1976; Emery and Magaard, 1976). These results would seem to be a corollary of the work of Fu and Flierl (1980) who showed that, for a realistic $N(z)$, energy cascades into the barotropic and first baroclinic modes in a nonlinear interchange which tends to increase both the horizontal and vertical length scales.

Table III. The Eigenvalues of the Rossby Modes for the $N(z)$ in Fig. 7

Mode	Eigenvalue λ (km^{-2})	Deformation Radius ($= 1/\sqrt{\lambda}$) (km)
0 (barotropic)	0	∞
1 (1st baroclinic)	$0.9905 \cdot 10^{-3}$	31.8
2	$0.6601 \cdot 10^{-2}$	12.3
3	$0.1041 \cdot 10^{-1}$	9.8
4	$0.1686 \cdot 10^{-1}$	7.7
5	$0.2739 \cdot 10^{-1}$	6.0
6	$0.3912 \cdot 10^{-1}$	5.1
7	$0.5284 \cdot 10^{-1}$	4.4
8	$0.6987 \cdot 10^{-1}$	3.8
9	$0.8603 \cdot 10^{-1}$	3.4
10	0.1064	3.1

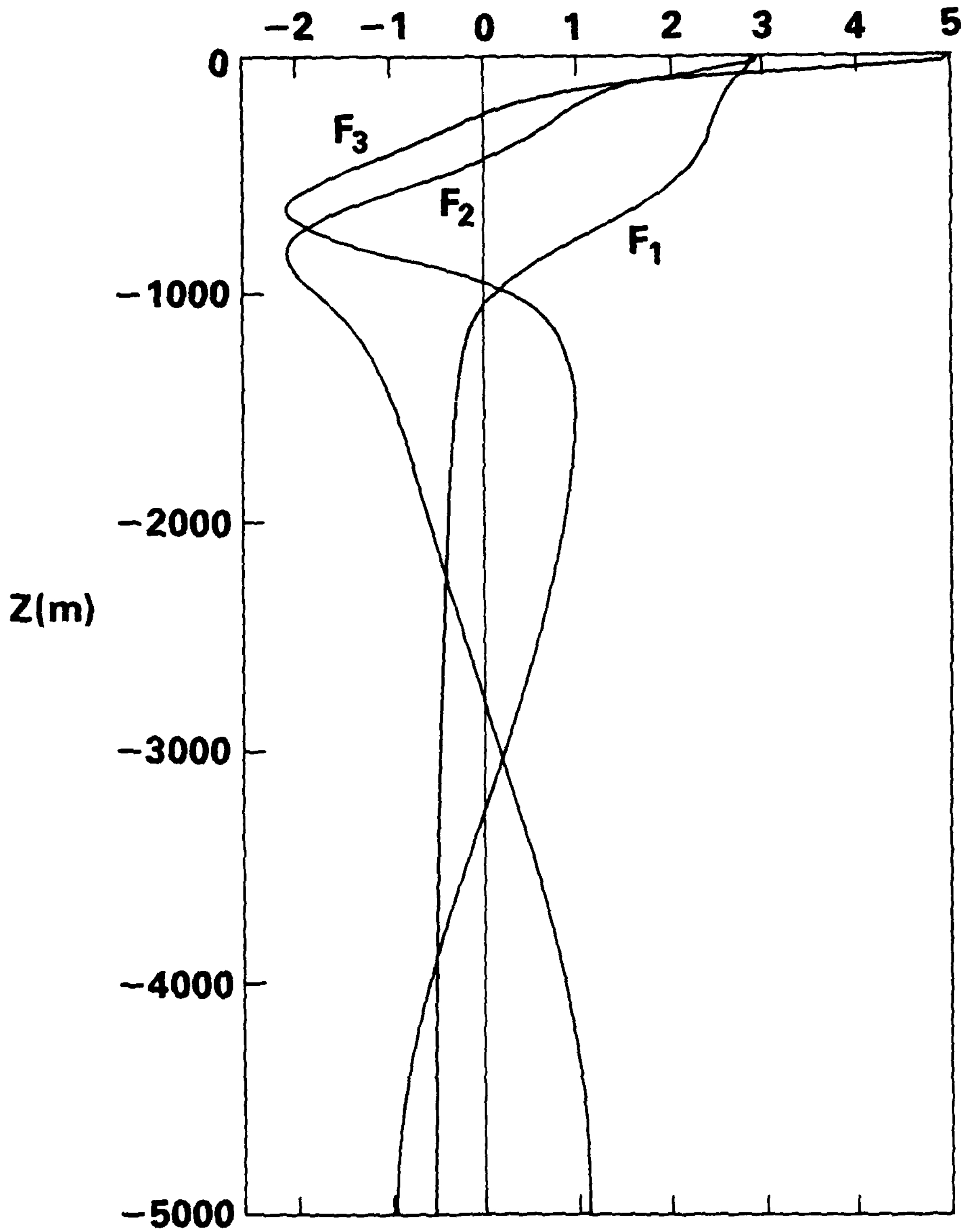

Fig. 8. The orthonormalized eigenfunctions $F_i(z)$ in the range $-H \leq z \leq 0$. The barotropic eigenfunction $F_0(z) = 1$ is not shown.

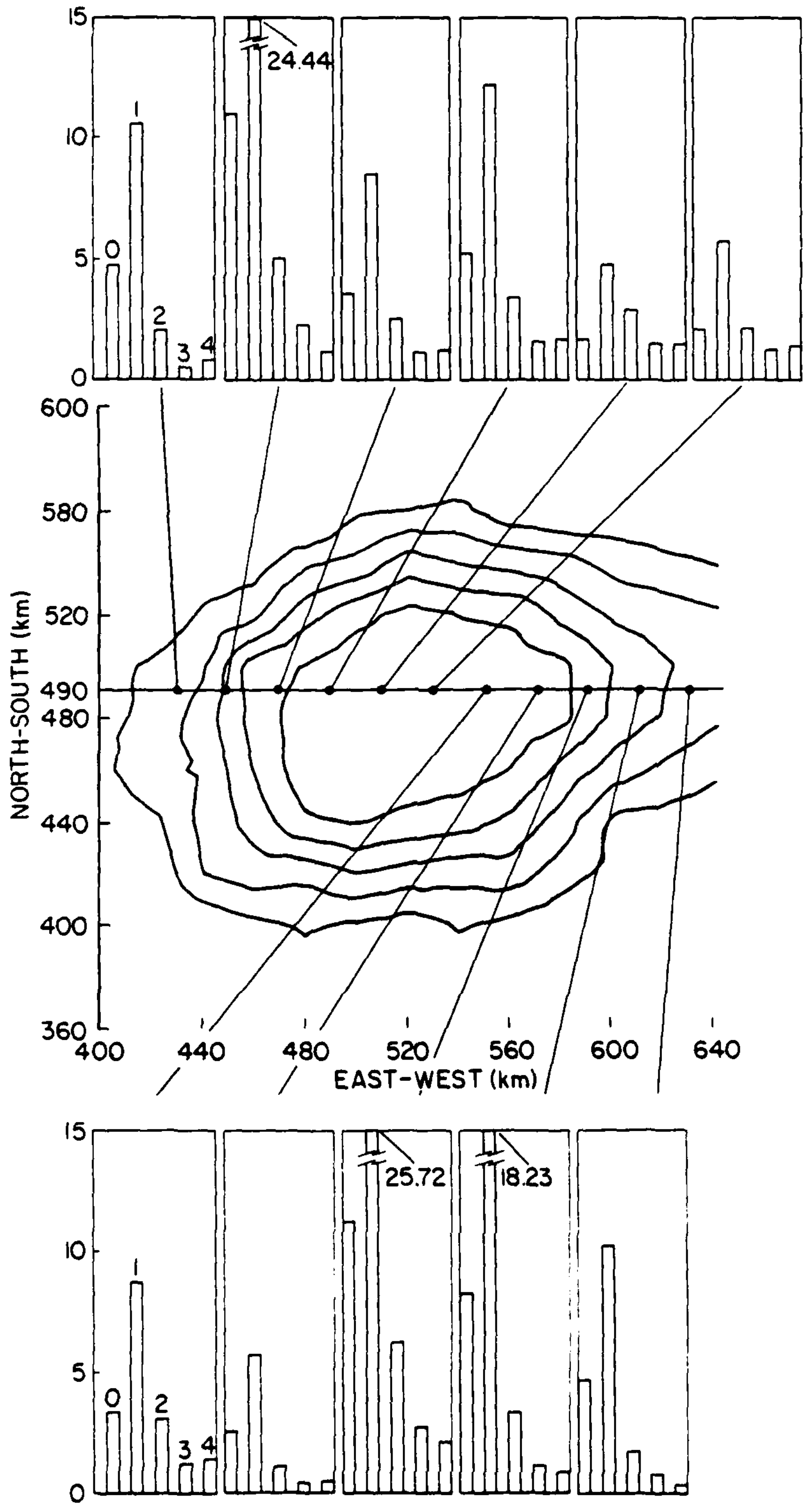

Fig. 9. Histogram of modal current coefficients, along an east-west track at a north-south distance of 490 km.

VII. CONCLUSION

The XBT data set for the FREDDEX eddy has been converted into convenient files on the NRL computer. These data have been edited and used to generate much hydrographic information, some of which is shown in this report. We have also used the density structure information to calculate the current structure in the eddy. The view of the authors is that this eddy-current environment constitutes not only a background in which the fine structure is embedded, but an environment which greatly influences the variance of these temperature fluctuations. It is this geographical variation of fine structure across the eddy with which we will deal in the next phase of the work.

ACKNOWLEDGMENT

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Table I

XBT NO.	# DATA POINTS	LATITUDE	LONGITUDE	PROBE TYPE	TIME DDD(HH:MM:SS)YYYY	BOTTOM DEPTH	MX LYR DEPTH	NEAR SURFAC TEMPERATU
2	4340	37.6290	-71.7885	5	156(19:29:58)1979	3233.0	14.0	21.453
3	7607	37.5627	-71.7647	5	156(20: 0: 2)1979	3293.0	15.0	20.715
4	4437	37.5173	-71.7035	7	156(20:30:17)1979	3386.0	18.0	20.568
5	7430	37.4715	-71.6447	5	156(21: 0: 4)1979	3491.0	15.0	20.666
8	4385*	37.3270	-71.4550	7	156(22:30:56)1979	3840.0	14.0	20.715
9	7684	37.2783	-71.3898	5	156(23: 0:11)1979	3960.0	18.0	20.323
10	4360	37.2290	-71.3217	7	156(23:30:18)1979	4056.0	16.0	20.814
11	6527	37.1808	-71.2498	5	157(0: 0:13)1979	4078.0	31.0	21.158
12	4257	37.1363	-71.1725	7	157(0:29:58)1979	4091.0	12.0	19.979
13	5543	37.0915	-71.0948	5	157(0:59:59)1979	4119.0	44.0	23.729
15	4180	37.0195	-70.9817	7	157(1:42:13)1979	4172.0	37.0	26.387
16	7836	36.9875	-70.9367	5	157(2: 0: 7)1979	4191.0	37.0	26.691
18	4257	36.9042	-70.8311	7	157(2:45:11)1979	4230.0	32.0	26.539
19	7531	36.8742	-70.7970	5	157(3: 0:33)1979	4266.0	55.0	25.681
20	4283	36.8193	-70.7322	7	157(3:30:19)1979	4294.0	12.0	25.983
21	7481	36.7600	-70.6552	5	157(4: 0:37)1979	4328.0	15.0	25.681
22	4308	36.7182	-70.5878	7	157(4:30:18)1979	4356.0	3.0	25.580
23	7785	36.6630	-70.5250	5	157(5: 0: 5)1979	4378.0	46.0	25.228
24	4385	36.6065	-70.4642	7	157(5:30: 1)1979	4395.0	17.0	25.178
25	8041	36.5523	-70.4065	5	157(6: 0: 3)1979	4399.0	13.0	23.978
26	4462	36.5002	-70.3408	7	157(6:30: 2)1979	4410.0	20.0	23.282
27	8092	36.4462	-70.2717	5	157(7: 0: 3)1979	4423.0	33.0	22.687
28	4514	36.3958	-70.2030	7	157(7:30: 3)1979	4429.0	25.0	23.879
29	7990	36.3437	-70.1312	5	157(8: 0: 3)1979	4440.0	16.0	23.978
30	4385	36.2900	-70.0633	7	157(8:30: 2)1979	4459.0	5.0	23.829
31	7582	36.2358	-70.0002	5	157(9: 0: 2)1979	4496.0	3.0	22.984
32	4257	36.1802	-69.9303	7	157(9:30: 9)1979	4478.0	40.0	23.481
33	7027	36.0200	-69.8048	5	157(12:59:58)1979	4569.0	18.0	24.527
34	4283	35.9992	-69.7198	7	157(13:30: 2)1979	4523.0	19.0	23.580
35	4772*	35.9790	-69.6313	7	157(13:59:58)1979	4522.0	9.0	23.580
36	4308	35.9587	-69.5400	7	157(14:30: 3)1979	4571.0	2.0	23.580
37	7481	35.9407	-69.4493	5	157(15: 0: 4)1979	4618.0	4.0	23.580
38	4385	35.9330	-69.4140	7	157(15:30: 5)1979	4622.0	3.0	24.577
39	6577	35.8845	-69.2702	5	157(16: 0: 0)1979	4654.0	4.0	24.727
41	7027	35.8198	-69.1047	5	157(17: 0:22)1979	4746.0	3.0	26.084
42	4334	35.7812	-69.0222	7	157(17:29:55)1979	4725.0	2.0	26.135
43	7430	35.7403	-68.9437	5	157(18: 0: 2)1979	4783.0	4.0	26.135
44	4283	35.6982	-68.8640	7	157(18:29:54)1979	4772.0	2.0	26.641
45	6527	35.6318	-68.6885	5	157(19:30: 4)1979	4973.0	2.0	25.178
46	4206	35.5988	-68.5763	7	157(20: 6: 5)1979	4931.0	3.0	25.983
47	6527	35.5732	-68.5058	5	157(20:30: 2)1979	4956.0	2.0	26.135
48	3976	35.5408	-68.4270	7	157(21: 0: 4)1979	5044.0	2.0	25.681
49	7113*	35.4473	-68.2207	5	157(22:30: 6)1979	-1.0	-1.0	25.882
50	4078	35.4160	-68.1533	7	157(22:59:56)1979	5029.0	3.0	25.480
51	6527	35.3683	-68.0702	5	157(23:30: 0)1979	5030.0	3.0	25.028
52	4334	35.3350	-67.9947	7	158(0: 0: 6)1979	5081.0	6.0	24.827
53	7278	35.3045	-67.9212	5	158(0:30:40)1979	5087.0	2.0	24.777
54	4180	35.2725	-67.8430	7	158(0:59:52)1979	5108.0	5.0	24.527
55	6901	35.2418	-67.7642	5	158(1:30: 4)1979	5111.0	9.0	24.577
56	4283	35.2152	-67.6798	7	158(1:59:55)1979	5134.0	4.0	24.777
57	7278	35.1862	-67.5797	5	158(2:35:11)1979	5132.0	9.0	25.580
58	4257	35.1645	-67.5070	7	158(3: 0: 4)1979	5124.0	43.0	25.379
59	7077	35.1343	-67.4258	5	158(3:29:58)1979	5143.0	50.0	25.178
60	4283	35.1048	-67.3538	7	158(4: 0: 2)1979	5111.0	16.0	24.978
61	7607	35.0760	-67.2798	5	158(4:30: 2)1979	5115.0	60.0	25.128
62	4232	35.0398	-67.1807	7	158(4:59:55)1979	5096.0	67.0	25.178
63	7557	35.0077	-67.1087	5	158(5:30: 1)1979	5164.0	2.0	25.178
64	4360	34.9998	-67.1026	7	158(6: 0: 1)1979	5184.0	3.0	24.877
65	7127	34.9425	-66.9633	5	158(6:30: 2)1979	5184.0	4.0	25.028
66	4257	34.9210	-66.9185	7	158(7: 0: 2)1979	5104.0	2.0	24.777
68	4232	34.8668	-66.8122	7	158(8: 0: 1)1979	5100.0	39.0	24.777
69	7127	34.8112	-66.6747	5	158(8:30:13)1979	5108.0	4.0	24.727
70	4180	34.7812	-66.5988	7	158(9: 0: 2)1979	5096.0	15.0	24.477
71	7557	34.7507	-66.5217	5	158(9:30: 2)1979	5115.0	30.0	24.228
72	4257	34.7222	-66.4388	7	158(10: 0:38)1979	5094.0	23.0	24.128
73	7430	34.6977	-66.3685	5	158(10:30: 2)1979	5113.0	31.0	24.078
74	4257	34.6667	-66.2813	7	158(11: 0: 2)1979	5093.0	7.0	23.978
75	7278	34.6375	-66.2017	5	158(11:30: 2)1979	5151.0	9.0	24.377
76	4334	34.6042	-66.1222	7	158(12: 0: 3)1979	5141.0	17.0	24.078

Table 1 (Continues)

77	7531	34.5660	-66.0460	5	158(12:30: 6)1979	5106.0	24.0	24.078
80	4232	34.4508	-65.8153	7	158(14: 0: 0)1979	5154.0	2.0	23.928
81	7607	34.4467	-65.8070	5	158(14:30: 7)1979	5121.0	2.0	22.935
82	1412	34.4467	-65.8070	7	158(15: 0: 6)1979	5096.0	2.0	23.282
84	4385	34.3270	-65.5030	7	158(16: 0: 1)1979	5076.0	2.0	23.580
85	7379	34.3088	-65.4232	5	158(16:30: 4)1979	5076.0	3.0	23.729
86	4334	34.2978	-65.3353	7	158(17: 0:10)1979	5006.0	3.0	23.431
87	7430	34.3053	-65.2550	5	158(17:30: 5)1979	5003.0	3.0	23.530
88	4180	34.3102	-65.1772	7	158(18: 0: 9)1979	5006.0	3.0	23.232
89	7684	34.3137	-65.0970	5	158(18:30: 6)1979	5012.0	2.0	23.481
90	4334	34.3158	-65.0212	7	158(19: 0: 4)1979	4995.0	2.0	23.431
91	7582	34.3215	-64.9430	5	158(19:30: 1)1979	4847.0	7.0	23.580
92	4283	34.3327	-64.8658	7	158(19:59:57)1979	4959.0	2.0	23.530
93	7278	34.3538	-64.7932	5	158(20:30:58)1979	5008.0	9.0	23.332
94	4232	34.3763	-64.7267	7	158(21: 0: 7)1979	5031.0	2.0	23.332
95	7785	34.4010	-64.6380	5	158(21:39: 3)1979	5059.0	9.0	23.282
96	4283	34.4033	-64.5845	7	158(22: 0: 2)1979	5059.0	9.0	23.282
97	7836	34.4078	-64.5063	5	158(22:31: 2)1979	5029.0	9.0	23.183
98	4283	34.4130	-64.4355	7	158(22:59:56)1979	4856.0	11.0	23.282
99	7531	34.4178	-64.3628	5	158(23:30: 4)1979	4956.0	16.0	23.332
100	4385	34.4250	-64.2893	7	159(0: 0:11)1979	4631.0	14.0	23.133
101	7633	34.4342	-64.2160	5	159(0:30: 8)1979	4819.0	13.0	23.133
102	4232	34.4378	-64.1588	7	159(1: 0: 7)1979	4869.0	10.0	23.133
103	7027	34.3835	-64.2208	5	159(1:30: 6)1979	4650.0	11.0	23.282
104	4334	34.3240	-64.2803	7	159(2: 0:17)1979	4628.0	15.0	23.183
105	4180	34.2968	-64.3072	7	159(2:15: 0)1979	5025.0	16.0	23.183
106	4283	34.0000	0.0000	7	159(2:29:54)1979	4969.0	2.0	23.034
107	4385	34.2405	-64.3633	7	159(2:45: 1)1979	4956.0	11.0	23.133
108	4385	34.2125	-64.3882	7	159(2:59:55)1979	4950.0	10.0	23.183
109	4257	34.2048	-64.4198	7	159(3:15: 4)1979	4654.0	2.0	23.183
110	4488	34.2293	-64.4365	7	159(3:30: 7)1979	4965.0	11.0	23.381
111	4257	34.2542	-64.4628	7	159(3:45: 2)1979	4988.0	5.0	23.034
112	4283	34.2767	-64.4867	7	159(4: 0: 3)1979	5003.0	18.0	22.984
113	4385	34.2938	-64.5035	7	159(4:10: 0)1979	5004.0	18.0	23.034
115	4283	34.3165	-64.4960	7	159(4:30: 1)1979	5018.0	9.0	23.034
116	4232	34.3197	-64.4660	7	159(4:40:28)1979	5027.0	12.0	23.232
117	4308	34.3280	-64.4413	7	159(4:49:55)1979	5049.0	2.0	22.885
119	4360	34.3462	-64.3913	7	159(5:10:29)1979	4895.0	3.0	-0.969
120	4232	34.3470	-64.3575	7	159(5:19:59)1979	4708.0	2.0	23.232
121	4334	34.3547	-64.3403	7	159(5:29:49)1979	4740.0	3.0	23.034
122	4257	34.3607	-64.3122	7	159(5:39:55)1979	4699.0	2.0	22.836
123	4257	34.3578	-64.2847	7	159(5:50: 1)1979	4689.0	18.0	22.984
125	4257	34.3095	-64.2573	7	159(6: 9:42)1979	4528.0	11.0	23.282
126	7379	34.2820	-64.2157	5	159(6:30: 9)1979	4609.0	22.0	23.530
127	4385	34.2462	-64.1415	7	159(6:59:53)1979	4950.0	13.0	23.034
128	7102	34.2057	-64.0492	5	159(7:30:12)1979	4800.0	13.0	23.133
129	4308	34.1723	-63.9868	7	159(8: 0:14)1979	4946.0	17.0	23.183
130	7455	34.1247	-63.9135	5	159(8:29:56)1979	4905.0	18.0	23.034
131	4385	34.3755	-63.8407	7	159(9: 0:36)1979	4774.0	15.0	23.034
132	6826	34.0275	-63.7773	5	159(9:29:37)1979	4807.0	12.0	23.183
133	4257*	33.9763	-63.7122	7	159(10: 0: 9)1979	4790.0	11.0	23.133
134	6977	33.9228	-63.6492	5	159(10:30: 2)1979	4796.0	17.0	22.885
135	4334	33.8697	-63.5885	7	159(11: 0: 3)1979	4740.0	13.0	23.431
136	7379	33.8175	-63.5343	5	159(11:30:33)1979	4701.0	12.0	23.928
137	4308	33.8397	-63.4407	7	159(12: 0: 6)1979	4553.0	14.0	23.978
138	7481	33.8657	-63.3468	5	159(12:30: 5)1979	4547.0	24.0	24.228
141	7990	33.9135	-63.1630	5	159(13:30: 7)1979	4781.0	23.0	24.766
141	4257	33.9445	-63.0892	7	159(14: 0: 5)1979	4993.0	11.0	24.666
142	7633	34.0118	-63.1242	5	159(14:30: 4)1979	4965.0	11.0	24.815
143	4283	34.0832	-63.1542	7	159(15: 0: 5)1979	4978.0	5.0	24.666
144	7684	34.1508	-63.1913	5	159(15:30: 4)1979	4946.0	3.0	24.220
145	4257	34.2193	-63.2290	7	159(16: 0: 8)1979	4890.0	5.0	23.873
146	7203	34.2822	-63.2800	5	159(16:30: 4)1979	4903.0	5.0	24.021
147	4232	34.3162	-63.3560	7	159(17: 0: 6)1979	5001.0	3.0	24.021
149	4155	34.3458	-63.5257	7	159(18: 0: 7)1979	4952.0	3.0	24.021
150	7582	34.3575	-63.6107	5	159(18:30: 5)1979	4978.0	4.0	24.269
151	4283	34.3775	-63.6967	7	159(19: 0: 4)1979	5006.0	3.0	24.418
154	7481	34.4395	-63.9562	5	159(20:30: 9)1979	4862.0	7.0	24.269
155	4257	34.4707	-63.9996	7	159(20:59:51)1979	4939.0	6.0	24.368
156	8041	34.5197	-63.9468	5	159(21:29:54)1979	4959.0	6.0	24.567
157	4385	34.5635	-63.8938	7	159(21:59:54)1979	4988.0	7.0	24.517
158	7684	34.6020	-63.8322	5	159(22:29:53)1979	4973.0	6.0	24.319

Table I (Continues)

159	4257	34.6315	-63.7655	7	159(23: 0: 0)1979	4905.0	4.0	24.418
160	7684	34.6602	-63.6990	5	159(23:29:57)1979	5001.0	8.0	23.873
161	4257	34.6890	-63.6400	7	160(0: 0: 1)1979	4965.0	4.0	24.071
162	7684	34.7197	-63.5818	5	160(0:29:52)1979	4969.0	9.0	24.021
163	4257	34.7485	-63.5222	7	160(0:59:48)1979	4991.0	8.0	23.626
164	7531	34.7723	-63.4535	5	160(1:29:49)1979	4828.0	10.0	23.873
166	4488	34.8425	-63.4515	7	160(2: 0: 8)1979	4845.0	5.0	24.468
167	7531	34.9148	-63.4565	5	160(2:29:55)1979	5031.0	10.0	24.021
168	4283	34.9960	-63.4562	7	160(3: 3:57)1979	5081.0	10.0	23.922
169	7278	35.0582	-63.4492	5	160(3:29:53)1979	5081.0	15.0	24.021
170	4232	35.1243	-63.4445	7	160(4: 0: 5)1979	5070.0	8.0	24.220
171	7278	35.1760	-63.4777	5	160(4:30: 6)1979	5066.0	14.0	23.922
172	4283	35.1618	-63.5878	7	160(4:59:57)1979	5044.0	9.0	24.220
173	7102	35.1518	-63.6903	5	160(5:29:52)1979	5021.0	11.0	24.071
174	4283	35.1383	-63.7855	7	160(5:59:42)1979	5023.0	11.0	24.220
175	7304	35.1168	-63.8982	5	160(6:30: 0)1979	5023.0	18.0	23.972
176	4283	35.0552	-63.9543	7	160(6:59:35)1979	4971.0	9.0	24.071
177	5641	34.9957	-64.0062	5	160(7:29:50)1979	4969.0	19.0	24.319
178	4257	34.9278	-64.0570	7	160(8: 0: 0)1979	5006.0	15.0	24.269
179	7405	34.8610	-64.0983	5	160(8:30:28)1979	5019.0	14.0	23.527
180	4360	34.7922	-64.1302	7	160(9: 0:30)1979	4965.0	15.0	23.675
181	7329	34.7177	-64.1568	5	160(9:30: 2)1979	4993.0	11.0	23.527
182	4257	34.6665	-64.1913	7	160(9:59:46)1979	4989.0	6.0	23.774
183	7329	34.5828	-64.2277	5	160(10:30: 3)1979	4974.0	10.0	23.527
184	4257	34.5155	-64.2660	7	160(11: 0: 5)1979	4965.0	10.0	23.725
186	4027	34.6562	-64.3253	7	160(12: 0: 5)1979	4924.0	11.0	23.774
187	7531	34.7237	-64.3587	5	160(12:30:17)1979	4937.0	10.0	23.675
188	4283	34.7917	-64.3965	7	160(13: 0: 3)1979	4899.0	8.0	23.972
190	4257	34.9250	-64.4502	7	160(14: 0: 7)1979	4937.0	15.0	23.823
191	8067	34.9935	-64.4715	5	160(14:30: 7)1979	4892.0	14.0	24.418
192	4283	35.0590	-64.4875	7	160(15: 0: 8)1979	4926.0	6.0	24.666
193	7582	35.1265	-64.5025	5	160(15:30: 7)1979	4903.0	7.0	24.021
194	4437	35.1657	-64.5682	7	160(16: 0: 9)1979	4853.0	6.0	24.269
195	7836	35.1857	-64.6677	5	160(16:30: 6)1979	4854.0	10.0	24.071
196	4488	35.2105	-64.7593	7	160(17: 0: 3)1979	4847.0	11.0	24.021
198	4437	35.1340	-64.8741	7	160(18: 0: 8)1979	4905.0	5.0	23.873
200	4514	34.9915	-64.9586	7	160(19: 0: 7)1979	4924.0	5.0	24.071
201	7990	34.9223	-64.9987	5	160(19:30: 6)1979	4989.0	10.0	24.269
202	4540	34.8628	-64.9808	7	160(19:59:56)1979	5068.0	4.0	24.120
203	8041	34.8127	-64.9347	5	160(20:29:53)1979	4834.0	6.0	24.021
204	4488	34.7678	-64.8787	7	160(20:59:58)1979	5049.0	10.0	23.873
205	8041	34.7205	-64.8187	5	160(21:33:36)1979	4927.0	10.0	24.120
206	4514	34.6827	-64.7728	7	160(21:59:58)1979	4579.0	7.0	24.120
207	8041	34.6383	-64.7210	5	160(22:29:44)1979	4894.0	13.0	24.021
208	4385	34.5970	-64.6660	7	160(23: 0: 0)1979	5048.0	11.0	24.368
209	7481	34.5562	-64.6123	5	160(23:29:50)1979	5115.0	13.0	23.972
210	4385	34.5113	-64.5578	7	161(0: 0:11)1979	4794.0	10.0	24.120
211	7785	34.4605	-64.4965	5	161(0:30:26)1979	4959.0	18.0	24.021
212	4129	34.4160	-64.4411	7	161(1: 0: 8)1979	4973.0	18.0	23.873
213	4385	34.3875	-64.4053	7	161(1:18: 7)1979	4959.0	13.0	24.021
214	7127	34.3692	-64.3820	5	161(1:29:57)1979	5053.0	17.0	23.922
215	4591	34.3027	-64.3980	7	161(1:59:53)1979	5063.0	4.0	24.170
216	7531	34.2353	-64.4272	5	161(2:29:55)1979	4959.0	15.0	23.823
217	4257	34.1807	-64.4470	7	161(3: 1:18)1979	4944.0	12.0	23.725
218	7278	34.1192	-64.4762	5	161(3:29:46)1979	4884.0	14.0	23.873
219	4334	34.0607	-64.4942	7	161(4: 0: 5)1979	4789.0	10.0	23.478
220	6876	33.9879	-64.5132	5	161(4:30: 7)1979	4681.0	20.0	23.626
221	4232	33.9247	-64.5310	7	161(5: 0: 0)1979	4856.0	13.0	23.823
222	7379	33.8612	-64.5592	5	161(5:30:13)1979	4740.0	18.0	23.873
224	6977	33.7233	-64.6093	5	161(6:30:18)1979	4740.0	19.0	23.725
225	4385	33.6663	-64.6372	7	161(7: 0: 6)1979	4830.0	7.0	23.576
226	7228	33.6005	-64.6570	5	161(7:30: 5)1979	4789.0	10.0	24.269
227	4232	33.5440	-64.6130	7	161(8: 0: 4)1979	4800.0	17.0	24.617
228	7278	33.4815	-64.5670	5	161(8:30:12)1979	4809.0	17.0	24.517
229	4385	33.4162	-64.5240	7	161(9: 0:14)1979	4730.0	23.0	24.368
230	7506	33.3643	-64.4788	5	161(9:30:20)1979	4706.0	22.0	24.517
231	4257	33.3052	-64.4268	7	161(10: 0: 5)1979	4641.0	23.0	24.666
233	4334	33.3427	-64.3162	7	161(11: 0:22)1979	4697.0	3.0	24.666
234	7939	33.3933	-64.2572	5	161(11:30: 1)1979	4718.0	27.0	24.517
235	4334	33.4497	-64.1953	7	161(12: 0: 5)1979	4686.0	18.0	24.418
236	8401	33.5023	-64.1455	5	161(12:30: 8)1979	4697.0	19.0	24.269
237	4360	33.5573	-64.0858	7	161(13: 0: 7)1979	4521.0	15.0	24.368
238	8041	33.6292	-64.0805	5	161(13:30:20)1979	3166.0	15.0	24.517

Table I (Continues)

239	4385	33.6973	-64.0815	7	161(14: 0:15)1979	3894.0	13.0	24.418
240	8375	33.7713	-64.0797	5	161(14:30:12)1979	3947.0	8.0	24.071
241	4334	33.8443	-64.0882	7	161(15: 0: 9)1979	3909.0	20.0	23.576
242	7557	33.9160	-64.1032	5	161(15:30: 9)1979	3928.0	17.0	23.873
243	4232	33.9882	-64.1182	7	161(16: 0: 6)1979	4022.0	17.0	23.576
244	3376*	34.0575	-64.1407	5	161(16:30: 7)1979	0.0	0.0	23.231
245	4232	34.1282	-64.1709	7	161(17: 0: 8)1979	5138.0	16.0	23.675
246	7152	34.2057	-64.1982	5	161(17:32:56)1979	4950.0	18.0	23.725
247	4232	34.2737	-64.2172	7	161(18: 1:22)1979	4922.0	15.0	23.774
248	7430	34.3488	-64.2492	5	161(18:30:22)1979	4641.0	8.0	23.576
250	7582	34.3508	-64.2893	5	161(18:52:36)1979	4682.0	19.0	23.576
251	7430	34.3413	-64.3095	5	161(19: 0: 4)1979	4716.0	18.0	23.725
252	4257	34.2997	-64.3738	7	161(19:30: 1)1979	5094.0	17.0	23.823
254	4411	34.2085	-64.4993	7	161(20:29:50)1979	4959.0	6.0	24.468
255	7633	34.1635	-64.5602	5	161(20:59:51)1979	4922.0	19.0	23.823
256	4385	34.1192	-64.6210	7	161(21:30:37)1979	4836.0	14.0	23.823
257	7481	34.0887	-64.6880	5	161(21:59:55)1979	4800.0	14.0	24.021
258	4360	34.0600	-64.7619	7	161(22:29:42)1979	4798.0	20.0	23.873
259	7027	34.0422	-64.8344	5	161(23: 0: 3)1979	4669.0	18.0	23.725
260	4380	34.0227	-64.9095	7	161(23:29:45)1979	4875.0	14.0	23.675
261	7785	34.0020	-64.9862	5	161(23:59:51)1979	4828.0	17.0	23.823
262	4334	33.9732	-65.0632	7	162(0:30:10)1979	4907.0	19.0	23.725
263	7582	33.9470	-65.1375	5	162(0:59:52)1979	4894.0	17.0	23.873
264	4360	34.0107	-65.1558	7	162(1:29:50)1979	4899.0	24.0	23.823
265	7531	34.0697	-65.1687	5	162(1:59:42)1979	4862.0	18.0	23.725
267	7027	34.1937	-65.2250	5	162(2:59:55)1979	4959.0	18.0	23.725
268	4385	34.2500	-65.2422	7	162(3:29:56)1979	4935.0	17.0	23.873
269	8816	34.3883	-65.3045	5	162(6: 0: 2)1979	5049.0	19.0	23.873
270	4385	34.3892	-65.2605	7	162(6:30: 0)1979	4946.0	17.0	24.220
271	8041	34.3605	-65.1893	5	162(7: 0: 3)1979	5031.0	21.0	24.071
272	4385	34.3470	-65.1167	7	162(7:30: 1)1979	5016.0	22.0	23.873
273	8298	34.3457	-65.0422	5	162(8: 0: 5)1979	5012.0	15.0	23.576
274	4257	34.3485	-64.9678	7	162(8:29:55)1979	5027.0	18.0	23.675
275	8041	34.3548	-64.8902	5	162(8:59:59)1979	5044.0	16.0	23.725
276	8041	34.3672	-64.7338	5	162(10: 0: 9)1979	5023.0	15.0	23.675
278	8041	34.3677	-64.5805	5	162(11: 0: 3)1979	5038.0	18.0	23.725
279	4129	34.3703	-64.5053	7	162(11:30:44)1979	5021.0	19.0	22.886
280	8041	34.3740	-64.4307	5	162(12: 0:10)1979	4954.0	14.0	23.132
283	4385	34.3635	-64.3482	7	162(13:30:20)1979	4768.0	16.0	23.132
286	7607	34.3473	-64.6058	5	162(15: 0:34)1979	5029.0	17.0	23.132
287	3346	34.3485	-64.6963	7	162(15:30:18)1979	5019.0	16.0	23.132
288	7531	34.3528	-64.7858	5	162(15:59:48)1979	5012.0	3.0	23.132
289	4411	34.3545	-64.8743	7	162(16:30:25)1979	5029.0	12.0	23.182
293	7243*	34.3558	-65.1863	5	162(18:15: 5)1979	0.0	0.0	23.231
294	4540	34.3550	-65.2300	7	162(18:30: 1)1979	4909.0	17.0	23.478
295	~~8015~~	~~34.3452~~	~~-65.2723~~	~~5~~	~~162(18:59:48)1979~~	~~5019.0~~	~~19.0~~	~~23.478~~
296	4540	34.3482	-65.1982	7	162(19:29:55)1979	5031.0	11.0	23.132
297	7481	34.3613	-65.1245	5	162(20: 0:22)1979	4989.0	22.0	22.984
298	4514	34.3633	-65.0483	7	162(20:29:46)1979	5019.0	2.0	22.984
299	7557	34.3690	-64.9713	5	162(21: 1: 4)1979	5006.0	19.0	23.083
300	4643	34.3697	-64.8937	7	162(21:30:12)1979	5014.0	20.0	23.083
301	8608	34.3660	-64.8153	5	162(22: 0: 6)1979	5016.0	21.0	23.280
302	4617	34.3667	-64.7405	7	162(22:29:51)1979	5025.0	17.0	23.231
303	8816	34.3673	-64.6648	5	162(23: 0: 1)1979	5032.0	21.0	23.083
304	4565	34.3682	-64.5895	7	162(23:29:47)1979	2986.0	21.0	23.231
305	7887	34.3658	-64.5143	5	162(23:59:46)1979	5029.0	21.0	23.132
306	4591	34.3650	-64.4353	7	163(0:29:45)1979	5044.0	17.0	23.231
307	8453	34.3677	-64.3565	5	163(0:59:41)1979	4838.0	17.0	23.083
309	4530	34.3603	-64.3740	5	163(2: 0: 4)1979	4988.0	20.0	23.330
310	4591	34.3563	-64.4592	7	163(2:29:59)1979	5034.0	18.0	23.231
311	7582	34.3545	-64.5428	5	163(2:59:50)1979	5031.0	28.0	23.083
312	4643	34.3548	-64.6265	7	163(3:29:47)1979	5031.0	28.0	23.231
313	4514	34.3563	-64.7182	7	163(4: 0: 1)1979	5021.0	12.0	23.182
315	4385	34.3565	-64.8828	7	163(5: 0: 3)1979	5044.0	20.0	23.083
316	7027	33.9453	-65.0898	5	163(8:16:37)1979	4916.0	31.0	23.428
318	6776	34.0228	-64.8903	5	163(9:33:40)1979	4875.0	23.0	23.231
319	4257	34.0982	-64.7630	7	163(10:30: 5)1979	4785.0	22.0	23.083
320	8067	34.1375	-64.6837	5	163(11: 0:11)1979	4863.0	24.0	22.837
321	3875	34.1737	-64.6078	7	163(11:30: 9)1979	4931.0	15.0	23.034
322	8072	34.2090	-64.5278	5	163(12: 0: 5)1979	4967.0	24.0	23.083
323	4002	34.2408	-64.4482	7	163(12:30: 6)1979	4974.0	21.0	22.984

Table I (Continues)

324	8556	34.2318	-64.4198	5	163(13: 0: 0)1979	4959.0	26.0	23.083
327	9182	34.1182	-64.4395	5	163(14: 0:10)1979	4894.0	25.0	23.132
328	4334	34.0685	-64.4590	7	163(14:30: 3)1979	4796.0	22.0	23.231
329	9182	34.0193	-64.4830	5	163(15: 0: 9)1979	4568.0	23.0	23.182
330	4308	33.9770	-64.5183	7	163(15:30:17)1979	4695.0	16.0	23.231
331	8246	33.9292	-64.5433	5	163(15:59:48)1979	4888.0	20.0	23.132
332	4283	33.8792	-64.5662	7	163(16:30:16)1979	4873.0	15.0	23.182
334	4257	33.7272	-64.6158	7	163(18: 0: 0)1979	4746.0	24.0	23.626
335	8608	33.6765	-64.6365	5	163(18:31: 2)1979	4824.0	22.0	23.182
336	4334	33.6268	-64.6603	7	163(19: 0:17)1979	4843.0	23.0	23.428
337	2654	33.5315	-64.6008	5	163(19:59:43)1979	0.0	0.0	23.873
338	4385	33.4862	-64.5625	7	163(20:29:58)1979	4819.0	20.0	24.021
339	8920	33.4388	-64.5283	5	163(20:59:58)1979	4669.0	24.0	23.725
340	4308	33.3900	-64.4948	7	163(21:29:57)1979	4701.0	19.0	23.725
341	9392	33.3385	-64.4625	5	163(21:59:54)1979	4688.0	24.0	23.823
342	4283	33.2902	-64.4312	7	163(22:29:57)1979	4631.0	12.0	23.725
343	7430	33.3223	-64.3687	5	163(23: 0: 5)1979	4644.0	22.0	23.972
344	4385	33.4238	-64.2275	7	163(23:59:44)1979	4706.0	2.0	23.774
345	6951	33.5360	-64.0883	5	164(0:59:56)1979	4635.0	18.0	23.725
346	4257	33.6073	-64.0783	7	164(1:30: 5)1979	4609.0	15.0	23.626
347	6977	33.6855	-64.0772	5	164(1:59:46)1979	4678.0	19.0	23.774
348	4180	33.7630	-64.0935	7	164(2:29:51)1979	4826.0	26.0	23.330
349	7027	33.8287	-64.1100	5	164(2:59:45)1979	4691.0	29.0	23.428
350	4257	33.9018	-64.1298	7	164(3:29:33)1979	4727.0	20.0	23.280
351	7027	33.9760	-64.1492	5	164(4: 0: 3)1979	4746.0	19.0	23.083
352	4385	34.0535	-64.1709	7	164(4:30: 3)1979	4871.0	20.0	23.083
353	7213	34.1308	-64.1880	5	164(5: 0: 5)1979	4950.0	18.0	23.231
354	4385	34.2055	-64.2083	7	164(5:30: 3)1979	4946.0	25.0	23.330
355	7052	34.2802	-64.2153	5	164(6: 0: 4)1979	4658.0	23.0	23.280
356	4232	34.3473	-64.2000	7	164(6:29:59)1979	4584.0	27.0	23.231
357	7152	34.3900	-64.1243	5	164(7: 0: 3)1979	4609.0	25.0	23.231
358	4206	34.4303	-64.0532	7	164(7:30: 5)1979	4939.0	23.0	23.280
359	6926	34.4658	-63.9728	5	164(8: 0:11)1979	4909.0	22.0	23.132
360	4257	34.5083	-63.8977	7	164(8:30: 5)1979	4933.0	21.0	23.280
361	7037	34.5502	-63.8250	5	164(9: 0: 0)1979	5006.0	23.0	23.280
362	4196	34.5932	-63.7517	7	164(9:30: 1)1979	5001.0	17.0	23.231
363	7178	34.6387	-63.6740	5	164(10: 0: 2)1979	4982.0	23.0	23.231
364	4385	34.6817	-63.5988	7	164(10:30: 2)1979	4931.0	19.0	23.182
365	6855*	34.7250	-63.5228	5	164(11: 0: 2)1979	4976.0	23.0	22.984
366	4155	34.8398	-63.5848	7	164(12: 0: 4)1979	4809.0	23.0	23.034
367	7027	34.9222	-63.7340	5	164(13: 0:11)1979	4809.0	26.0	23.330
371	7836	34.9797	-63.9940	5	164(15: 0:18)1979	4973.0	15.0	23.873
372	4129	34.9005	-64.0293	7	164(15:30: 7)1979	4959.0	7.0	24.021
373	7990	34.8308	-64.0645	5	164(15:59:56)1979	4935.0	12.0	23.428
374	4104	34.7617	-64.1008	7	164(16:29:44)1979	4941.0	6.0	23.478
376	4334	34.6320	-64.1743	7	164(17:36:28)1979	5012.0	6.0	23.725
377	7811	34.5698	-64.2135	5	164(18: 0: 6)1979	4989.0	3.0	23.725
378	4232	34.5073	-64.2518	7	164(18:30: 6)1979	4989.0	3.0	23.823
380	7253	34.5702	-64.2887	5	164(19: 0: 1)1979	4997.0	3.0	23.725
382	7127	34.7012	-64.3592	5	164(20: 0: 0)1979	5016.0	7.0	23.675
383	4283	34.7632	-64.3918	7	164(20:30: 2)1979	4946.0	8.0	23.873
385	4283	34.8868	-64.4388	7	164(21:30:13)1979	4972.0	6.0	24.368
386	7684	34.8488	-64.5788	5	164(22:30: 2)1979	4935.0	10.0	24.120
387	4129	34.7387	-64.7560	7	164(23:29:51)1979	4894.0	9.0	24.120
389	4772*	34.6442	-64.7213	7	165(0:29:40)1979	4809.0	10.0	23.922
390	7531	34.5975	-64.6743	5	165(1: 7:16)1979	5108.0	10.0	23.873
391	4232	34.5555	-64.6243	7	165(1:29:17)1979	5115.0	10.0	23.626
392	7127	34.5105	-64.5692	5	165(1:59: 2)1979	5062.0	10.0	23.823
393	4257	34.4687	-64.5143	7	165(2:29:53)1979	4862.0	2.0	23.231
395	4257	34.3902	-64.4492	7	165(3:15:45)1979	5031.0	6.0	23.725
396	4232	34.3583	-64.4443	7	165(3:29:53)1979	5053.0	2.0	23.873
398	4027	34.3263	-64.4325	7	165(3:44:43)1979	5053.0	2.0	23.873
399	4257	34.2932	-64.4225	7	165(4: 0: 4)1979	5034.0	4.0	23.626
400	4257	34.2625	-64.4108	7	165(4:15: 3)1979	4988.0	5.0	23.823
401	1412	34.2517	-64.4220	7	165(4:30: 5)1979	0.0	0.0	23.725
402	7152	34.2890	-64.4998	5	165(5: 0: 6)1979	5006.0	14.0	23.626
403	3926	34.2963	-64.5770	7	165(5:30: 4)1979	5003.0	5.0	23.725
404	7027	34.2970	-64.6307	5	165(6: 0: 3)1979	4990.0	11.0	23.576
407	4129	0.0000	0.0000	7	165(7:30: 4)1979	4712.0	13.0	23.626
410	9077	34.3405	-64.9610	5	165(17: 9:59)1979	5062.0	28.0	23.725
412	8920	34.3372	-64.8068	5	165(18:30: 2)1979	5006.0	28.0	23.725
413	9077	34.2915	-64.3085	5	165(22: 4:23)1979	5076.0	30.0	23.626
414	8453	34.2478	-64.0117	5	166(0:16:49)1979	4350.0	36.0	23.2[illegible]

Table 1 (Continues)

417	8556	34.2568	-64.4560	5	166(17: 1: 0)1979	4999.0	39.0	23.231
419	8556	34.3448	-64.3852	5	166(17:59:55)1979	4948.0	30.0	23.478
420	4078	34.4047	-64.3648	7	166(18:30:10)1979	4948.0	30.0	23.280
421	9077	34.4652	-64.3530	5	166(18:59:55)1979	4963.0	3.0	23.478
422	4257	34.5260	-64.3397	7	166(19:30: 7)1979	4946.0	32.0	23.428
423	9228*	34.5838	-64.3252	5	166(20: 0: 6)1979	0.0	0.0	23.576
424	4180	34.6380	-64.3095	7	166(20:30:48)1979	4954.0	25.0	23.626
425	8556	34.6960	-64.2938	5	166(21: 0:32)1979	4959.0	2.0	23.280
426	4129	34.7512	-64.2793	7	166(21:29:48)1979	4948.0	34.0	23.428
427	8556	34.8080	-64.2607	5	166(21:59:46)1979	4954.0	31.0	23.330
429	7455	34.9187	-64.2190	5	166(22:59:20)1979	4941.0	44.0	23.478
430	4283	34.9733	-64.1943	7	166(23:30:52)1979	4958.0	40.0	23.478
431	7481	35.0380	-64.1792	5	167(0: 0:39)1979	4988.0	37.0	23.231
432	4283	35.1033	-64.1738	7	167(0:31: 7)1979	4978.0	4.0	23.428
433	6926	35.1642	-64.1770	5	167(0:59:28)1979	5016.0	28.0	23.527
434	4360	35.0948	-64.2010	7	167(1:29:37)1979	4976.0	4.0	23.428
435	7027	35.0205	-64.2242	5	167(1:59:44)1979	4607.0	30.0	23.330
436	4334	34.9403	-64.2402	7	167(2:29:51)1979	4941.0	40.0	23.478
437	7481	34.8627	-64.2632	5	167(3: 1:26)1979	4875.0	34.0	23.428
438	4180	34.7847	-64.2823	7	167(3:29:49)1979	4950.0	5.0	23.478
439	7329	34.7117	-64.2973	5	167(4: 0: 3)1979	4973.0	30.0	23.330
440	4257	34.6255	-64.3167	7	167(4:30: 2)1979	4993.0	37.0	23.330
441	7607	34.5472	-64.3385	5	167(5: 0: 3)1979	4974.0	41.0	23.280
442	4232	34.4723	-64.3593	7	167(5:30: 4)1979	4935.0	23.0	23.527
443	7430	34.4002	-64.3825	5	167(6: 0: 1)1979	4969.0	25.0	23.231
444	4334	34.3323	-64.4000	7	167(6:30: 5)1979	501.0	30.0	23.182
445	7430	34.2635	-64.4108	5	167(7: 0: 2)1979	4993.0	29.0	23.231
446	4257*	34.1977	-64.4221	7	167(7:30: 2)1979	4950.0	33.0	22.984
447	7582	34.1360	-64.4317	5	167(8: 0: 2)1979	4913.0	28.0	23.182
448	4308	34.0718	-64.4333	7	167(8:30: 3)1979	4809.0	29.0	23.132
449	7430	34.0092	-64.4437	5	167(9: 0: 4)1979	4866.0	30.0	23.182
450	4257*	33.9480	-64.4632	7	167(9:30: 3)1979	4774.0	28.0	23.231
451	7027	33.8855	-64.4774	5	167(10: 0: 0)1979	4729.0	36.0	23.231
452	4129	33.8250	-64.4990	7	167(10:30: 2)1979	4725.0	24.0	23.034
453	7531	33.7660	-64.5255	5	167(11: 0: 0)1979	4753.0	28.0	23.132
454	4129	33.7048	-64.5538	7	167(11:30: 6)1979	4748.0	28.0	22.935
455	6776	33.6370	-64.5793	5	167(12: 1:33)1979	4785.0	3.0	23.330
456	4257	33.5765	-64.6020	7	167(12:30:10)1979	4791.0	17.0	23.478
457	6652	33.5172	-64.6203	5	167(12:56:59)1979	4800.0	15.0	23.922
458	4232	33.4485	-64.6392	7	167(13:30:46)1979	4791.0	27.0	24.220
459	7027	33.3808	-64.6575	5	167(13:59:52)1979	4695.0	31.0	24.418
460	7481	33.3897	-65.4688	5	167(20: 0: 7)1979	4875.0	27.0	23.478
461	4257	33.4535	-65.4285	7	167(20:29:32)1979	4888.0	29.0	23.280
463	4514	33.5773	-65.3320	7	167(21:29:49)1979	4232.0	15.0	23.478
464	7027	33.6387	-65.2777	5	167(22: 0: 8)1979	4950.0	28.0	23.428
465	4385	33.6988	-65.2187	7	167(22:30:14)1979	4857.0	24.0	23.626
466	7077	33.7617	-65.1643	5	167(22:59:12)1979	5415.0	27.0	23.725
467	4257	33.8283	-65.1145	7	167(23:29:51)1979	4851.0	34.0	23.626
468	7481	33.8947	-65.0702	5	167(23:59:58)1979	5228.0	38.0	23.725
469	4488	33.9592	-65.0237	7	168(0:31:53)1979	4884.0	29.0	23.626
470	7481	34.0172	-64.9925	5	168(0:59:45)1979	4928.0	34.0	23.478
471	4514	34.0798	-64.9625	7	168(1:30:24)1979	4901.0	18.0	23.576
472	7329	34.1315	-64.9252	5	168(2: 0:22)1979	4841.0	19.0	23.725
473	4385	34.1827	-64.8863	7	168(2:30: 8)1979	4744.0	33.0	23.576
474	6977	34.2272	-64.8423	5	168(2:59:47)1979	4753.0	20.0	23.626
475	4385	34.2723	-64.8007	7	168(3:30: 5)1979	4969.0	26.0	23.527
476	7178	34.3192	-64.7632	5	168(4: 0: 5)1979	4974.0	30.0	23.478
477	4385	34.3638	-64.7208	7	168(4:30: 1)1979	5027.0	34.0	23.478
479	4385	34.4632	-64.6545	7	168(5:30: 2)1979	5057.0	24.0	23.527
480	7127	34.5127	-64.6177	5	168(6: 0: 4)1979	5094.0	27.0	23.576
481	4385	34.5630	-64.5760	7	168(6:30: 1)1979	5106.0	15.0	23.428
482	7329	34.6118	-64.5330	5	168(7: 0: 4)1979	5460.0	13.0	23.478
483	4385	34.6660	-64.4885	7	168(7:30: 4)1979	4881.0	24.0	23.428
485	7430	34.7292	-64.4487	5	168(8: 0:11)1979	4862.0	13.0	23.428
486	4385	34.7938	-64.4117	7	168(8:30: 7)1979	4883.0	19.0	23.478
487	7077	34.8643	-64.3800	5	168(9: 0: 5)1979	4913.0	31.0	22.886
488	4385	34.9238	-64.3410	7	168(9:30:17)1979	4933.0	27.0	23.330
489	7178	34.9835	-64.2957	5	168(10: 0: 1)1979	4946.0	34.0	23.478
491	7531	35.0390	-64.1538	5	168(11: 0: 9)1979	4969.0	44.0	23.478
492	4385	35.0573	-64.0750	7	168(11:29:54)1979	4995.0	36.0	23.576
493	7127	35.0842	-64.0005	5	168(12: 0: 9)1979	5010.0	31.0	23.428
494	4385	35.1135	-63.9268	7	168(12:29:44)1979	5016.0	9.0	23.725
495	7278	35.1612	-63.7768	5	168(13:29:59)1979	5034.0	3.0	23.823

Table I (Continues)

496	4283	35.1792	-63.6990	7	168(14: 1: 0)1979	5003.0	2.0	24.269
497	7531	35.2067	-63.5538	5	168(15: 0: 2)1979	5049.0	26.0	24.269
498	7278	35.2467	-63.4030	5	168(15:59:57)1979	5171.0	3.0	23.873
500	7990	35.3195	-63.1727	5	168(17:29:54)1979	4928.0	3.0	23.972
501	7658	35.3337	-63.0938	5	168(17:59:50)1979	4828.0	3.0	24.269
503	8092	35.0445	-63.0775	5	168(20:30: 3)1979	4851.0	29.0	23.922
504	7027	34.9233	-63.0787	5	168(21:29:44)1979	4909.0	23.0	24.120
505	8041	34.8010	-63.0827	5	168(22:29:59)1979	4918.0	21.0	24.120
508	5300	34.4928	-63.0822	5	169(0:59:53)1979	4959.0	32.0	23.823
509	8041	34.3505	-63.0802	5	169(2: 9:22)1979	5109.0	23.0	23.873
510	8298	34.2485	-63.0792	5	169(3: 6: 1)1979	5081.0	25.0	23.725
511	7531	34.1260	-63.0758	5	169(4: 0: 2)1979	5123.0	21.0	23.626
512	8291*	34.0050	-63.0853	5	169(5: 0: 3)1979	5038.0	18.0	23.972
513	8195	33.8807	-63.0853	5	169(6: 0: 2)1979	4901.0	19.0	23.972
514	8556	33.7522	-63.0845	5	169(7: 0: 2)1979	4840.0	25.0	23.873
515	8092	33.6202	-63.0828	5	169(8: 0: 4)1979	4684.0	30.0	23.972
516	8195	33.4923	-63.1003	5	169(9: 0: 0)1979	4704.0	31.0	23.873
517	8041	33.3603	-63.0943	5	169(9:59:59)1979	4725.0	26.0	23.873
518	8041	33.2242	-63.0862	5	169(11: 0: 5)1979	4922.0	32.0	23.873
519	6627	33.0957	-63.0877	5	169(12: 0: 7)1979	4828.0	29.0	24.120
520	8298	34.3453	-63.1248	5	169(21:59:47)1979	5203.0	17.0	24.120
521	4385	34.3462	-63.1993	7	0(0: 0: 0) 0	0.0	0.0	0.000
523	4232	34.3485	-63.3483	7	0(0: 0: 0) 0	0.0	0.0	0.000
524	7531	34.3502	-63.4175	5	169(23:59:58)1979	4914.0	28.0	24.071
525	4385	34.3497	-63.4877	7	170(0:29:34)1979	4931.0	28.0	24.021
526	8298	34.3483	-63.5578	5	170(0:59:39)1979	4952.0	2.0	23.725
528	4129*	34.3463	-63.6305	7	170(1:30: 5)1979	4974.0	31.0	23.231
529	8246	34.3440	-63.6960	5	170(1:59:29)1979	4991.0	25.0	23.182
530	4257	34.3462	-63.7678	7	170(2:29:36)1979	4944.0	26.0	23.428
531	7531	34.3473	-63.8367	5	170(2:59:36)1979	5016.0	20.0	23.576
532	4283	34.3665	-63.9072	7	170(3:29:53)1979	5044.0	19.0	23.922
533	8144	34.3553	-63.9795	5	170(4: 0: 1)1979	4873.0	21.0	23.626
534	4129	34.3503	-64.0457	7	170(4:30: 1)1979	4785.0	22.0	23.478
535	8195	34.3443	-64.1122	5	170(5: 0: 2)1979	4673.0	27.0	23.231
536	4385	34.3447	-64.1825	7	170(5:30: 7)1979	4633.0	27.0	23.478
538	4180	34.3392	-64.3220	7	170(6:30: 3)1979	4791.0	30.0	23.626
539	7764*	34.3370	-64.3902	5	170(7: 0: 3)1979	4991.0	8.0	23.478
540	4283	34.3345	-64.4662	7	170(7:30: 2)1979	5021.0	24.0	23.478
541	8375	34.3303	-64.5363	5	170(8: 0: 3)1979	5016.0	23.0	23.478
542	4257	34.3353	-64.6192	7	170(8:30: 7)1979	5016.0	24.0	23.478
543	7913	34.3365	-64.6972	5	170(9: 0: 8)1979	5049.0	37.0	23.478
544	4232	34.3412	-64.7745	7	170(9:30: 3)1979	5006.0	31.0	23.330
545	8556	34.3413	-64.8535	5	170(10: 0:17)1979	5016.0	29.0	23.428
546	4257	34.3388	-64.9257	7	170(10:29:57)1979	4931.0	37.0	23.280
550	7990	34.3498	-65.1483	5	170(12: 0: 9)1979	5001.0	30.0	124.020
551	4283	34.3340	-65.2247	7	170(12:29:57)1979	2029.0	15.0	23.873
552	8015	34.3320	-65.4642	5	170(14: 6: 2)1979	5072.0	31.0	25.064
553	1364	34.3348	-65.5253	7	170(14:30:25)1979	5076.0	36.0	24.915
554	8556	34.3398	-65.5997	5	170(15: 0: 8)1979	5070.0	30.0	24.815
555	9604	33.8533	-65.6690	5	170(23:59:50)1979	4974.0	17.0	25.064
556	4257	33.8980	-65.6870	7	171(0:59:57)1979	4963.0	35.0	24.815
557	4257	33.9483	-65.7095	7	171(1:59:55)1979	4654.0	30.0	24.617
558	9604	34.0018	-65.7253	5	171(3: 0:49)1979	4688.0	24.0	24.468
559	4385	34.0540	-65.7395	7	171(4: 0: 1)1979	4973.0	22.0	24.666
561	4257	34.1110	-65.7517	7	171(5: 0:39)1979	5036.0	22.0	24.517
562	8556	34.1653	-65.7605	5	171(6: 0: 4)1979	5081.0	39.0	24.517
563	4283	34.2227	-65.7695	7	171(7: 0: 2)1979	5460.0	42.0	24.418
564	4257	34.2783	-65.7730	7	171(8: 0: 9)1979	5100.0	41.0	24.269
565	8816	34.3167	-65.6858	5	171(8:59:57)1979	5104.0	6.0	24.269
567	4257	34.4003	-65.5467	7	171(11: 0: 2)1979	5087.0	30.0	24.517
569	4257	34.5270	-65.3770	7	171(13:33:12)1979	5053.0	16.0	24.120
570	6876	34.5522	-65.3533	5	171(14: 0:27)1979	4914.0	29.0	23.873
571	4385	34.5725	-65.3134	7	171(14:30:22)1979	5010.0	15.0	23.626
572	8427	34.5938	-65.2707	5	171(15: 0: 8)1979	5046.0	27.0	23.823
573	4283	34.5593	-65.1912	7	171(15:30:25)1979	5081.0	8.0	24.220
574	7027	34.5277	-65.1038	5	171(15:59:48)1979	5085.0	2.0	23.823
575	4244	34.5140	-65.0182	5	171(16:30:35)1979	5062.0	8.0	23.725
576	7836	34.5048	-64.9322	5	171(17: 0: 8)1979	5059.0	4.0	23.725
577	4360	34.4875	-64.8467	7	171(17:29:51)1979	5070.0	2.0	23.922
578	7607	34.4710	-64.7600	5	171(18: 0:18)1979	5068.0	2.0	23.972
530	7939	34.4357	-64.5938	5	171(18:59:43)1979	5059.0	2.0	23.527
581	302	34.4128	-64.5095	7	171(19:30:53)1979	0.0	0.0	24.021
582	7077	34.3895	-64.4285	5	171(19:59:39)1979	4907.0	2.0	24.071

Table I (Continues)

583	4104	34.3638	-64.3434	7	171(20:29:50)1979	4749.0	2.0	24.617
584	8504	34.3473	-64.2612	5	171(20:59:58)1979	4637.0	2.0	24.120
586	7734	34.2633	-64.2483	5	171(21:59:40)1979	5036.0	9.0	24.418
587	4232	34.2050	-64.2549	7	171(22:29:44)1979	4926.0	10.0	24.269
588	7990	34.1492	-64.2597	5	171(22:59:40)1979	4918.0	9.0	24.418
589	4283	34.0940	-64.2700	7	171(23:29:46)1979	4369.0	7.0	24.120
590	7531	34.0367	-64.2833	5	171(23:59:53)1979	4551.0	13.0	23.922
591	4360	33.9810	-64.2930	7	172(0:30:23)1979	4612.0	6.0	24.120
592	7077	33.9258	-64.3028	5	172(0:59:35)1979	4986.0	12.0	24.071
593	4257	33.8672	-64.3102	7	172(1:30: 9)1979	4838.0	8.0	24.269
594	7990	33.8133	-64.3248	5	172(2: 0:36)1979	4712.0	9.0	24.368
595	4334	33.7570	-64.3323	7	172(2:31:50)1979	4697.0	15.0	24.269
596	8041	33.6972	-64.3360	5	172(2:59:36)1979	4838.0	13.0	24.368
597	4206	33.6398	-64.3440	7	172(3:30:22)1979	4692.0	6.0	24.517
598	7785	33.5895	-64.3531	5	172(3:59:52)1979	4721.0	14.0	23.972
599	4283	33.5257	-64.3590	7	172(4:30: 3)1979	4767.0	9.0	24.120
601	4283	33.4167	-64.3883	7	172(5:30: 4)1979	4733.0	26.0	24.269
602	8169	33.3577	-64.4032	5	172(6: 0: 4)1979	4689.0	27.0	24.517

* DATA HAS BEEN TRUNCATED.

XBT NO.	TRUNCATION DEPTH(M)
8	900
35	975
49	1450
133	875
244	725
293	1500
365	1425
389	975
423	1875
446	875
450	875
512	1700
528	850
539	1600